CITY OF ALBUQUERQUE

March 6, 2009

Tucker H. Green, P.E.
Per Se Engineering
2116 Lead Ave SE
Albuquerque, NM 87106

Re: Sandia Plaza Improvements, 3301 Juan Tabo NE,
Approval of Permanent Certificate of Occupancy (C.O.)
Engineer's Stamp dated 2/21/08 (G-21/D038)
Certification dated 3-04-09

Dear Mr. Green,

Based upon the information provided in your submittal received 3-04-09, the above referenced certification is approved for release of Permanent Certificate of Occupancy by Hydrology.

If you have any questions, you can contact me at 924-3982.

Sincerely,

Timothy E. Sims
Plan Checker—Hydrology,
Development and Building Services

C: CO Clerk-Katrina Sigala
File

PO Box 1293
Albuquerque
NM 87103
www.cabq.gov

DRAINAGE AND TRANSPORTATION INFORMATION SHEET
(Rev. 12/05)

PROJECT TITLE: SANDIA PLAZA IMPROVEMENTS ZONE MAP/DRG. FILE # G-21-Z / G21-D38
DRB#: _____ EPC#: 1000074 (PREVIOUS) WORK ORDER#: _____

LEGAL DESCRIPTION: TRACT H-3-A LA RANCHO DE LOS ACTOS, UNIT 2
CITY ADDRESS: 3301 JUAN TABO N.E.

ENGINEERING FIRM: PER SE ENGINEERING. CONTACT: TUCKER GREEN
ADDRESS: 2116 LEAD AVE. SE PHONE: 232-9394
CITY, STATE: ALBUQ. NM ZIP CODE: 87106

OWNER: SANDIA PLAZA PARTNERS LLC CONTACT: PAUL BLANCHARD
ADDRESS: 5850 EUBANK N.E SUITE B-62 PHONE: 275-0000
CITY, STATE: ALBUQ NM. 87111 ZIP CODE: 87111

ARCHITECT: GARLAN BRYAN Architect. CONTACT: ROB RAYNER
ADDRESS: 2403 SAN MATEO BLVD NE PHONE: 884-9694
CITY, STATE: SUITE D-1 ALBUQ. NM ZIP CODE: 87110

SURVEYOR: HARRIS SURVEYING INC. CONTACT: TONY HARRIS
ADDRESS: 2412 MONROE St. NE PHONE: 889-8056
CITY, STATE: ALBUQ. NM. ZIP CODE: 87110

CONTRACTOR: BLANCHARD CONST. CO. CONTACT: WENDELL HALL
ADDRESS: 5859 EUBANK BLVD NE. SUITE B-62 PHONE: 803-7169
CITY, STATE: ALBUQ. NM ZIP CODE: 87111

TYPE OF SUBMITTAL:
- _____ DRAINAGE REPORT
- _____ DRAINAGE PLAN 1st SUBMITTAL
- _____ DRAINAGE PLAN RESUBMITTAL
- _____ CONCEPTUAL G & D PLAN
- _____ GRADING PLAN
- _____ EROSION CONTROL PLAN
- X ENGINEER'S CERT (HYDROLOGY)
- _____ CLOMR/LOMR
- _____ TRAFFIC CIRCULATION LAYOUT
- _____ ENGINEER/ARCHITECT CERT (TCL)
- _____ ENGINEER/ARCHITECT CERT (DRB S.P.)
- _____ ENGINEER/ARCHITECT CERT (AA)
- _____ OTHER (SPECIFY)

CHECK TYPE OF APPROVAL SOUGHT:
- _____ SIA/FINANCIAL GUARANTEE RELEASE
- _____ PRELIMINARY PLAT APPROVAL
- _____ S. DEV. PLAN FOR SUB'D APPROVAL
- _____ S. DEV. FOR BLDG. PERMIT APPROVAL
- _____ SECTOR PLAN APPROVAL
- _____ FINAL PLAT APPROVAL
- _____ FOUNDATION PERMIT APPROVAL
- _____ BUILDING PERMIT APPROVAL
- X CERTIFICATE OF OCCUPANCY (PERM)
- _____ CERTIFICATE OF OCCUPANCY (TEMP)
- _____ GRADING PERMIT APPROVAL
- _____ PAVING PERMIT APPROVAL
- _____ WORK ORDER APPROVAL
- _____ OTHER (SPECIFY)

RECEIVED
MAR 04 2009
HYDROLOGY SECTION

WAS A PRE-DESIGN CONFERENCE ATTENDED:
- _____ YES
- _____ NO
- _____ COPY PROVIDED

Y-PERM 3-6-9

SUBMITTED BY: TUCKER GREEN DATE: 3-4-09

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage submittal. The particular nature, location and scope to the proposed development define the degree of drainage detail. One or more of the following levels of submittal may be required based on the following:

1. **Conceptual Grading and Drainage Plan:** Required for approval of Site Development Plans greater than five (5) acres and Sector Plans.

2. **Drainage Plans:** Required for building permits, grading permits, paving permits and site plans less than five (5) acres.

3. **Drainage Report:** Required for subdivision containing more than ten (10) lots or constituting five (5) acres or more.

Per Se Engineering

Drainage, Utilities, & Site Design

2116 Lead Ave. SE - Albuquerque NM 87106 - 505.232-9394 -

Monday, February 2, 2009

Traci Wolf,
Defined Fitness,
3301 Juan Tabo NE
Albuquerque NM 87111

Paul Blanchard
Sandia Plaza
3301 Juan Tabo NE / 5850 Eubank Blvd. NE, Suite B52
Albuquerque NM 87111

Re: "As Built" Certification for Sandia Plaza / Defined Fitness Improvements at Sandia Plaza, Albuquerque, NM

This letter concerns construction which was not performed according to the approved sitework plans that I prepared, as noted below. If these items are acceptable to each of you, separately, they will be acceptable to me and I will be able to certify to the City of Albuquerque that my part of the project has been constructed sufficiently well.

My understanding is that your interests in part overlap and in part are different. I am sending the same letter to each of your and will need from each of you a copy with your signature of approval. I will include copies of the signed letters with my certification submittal. You can send .pdf files of the signed letters to me at TuckGreen@Netzero.com.

First I reproduce several General Notes from the approved plan set:

3. CONTRACTOR'S GOOD SENSE: THE CONTRACTOR IS EXPECTED TO USE HIS GOOD SENSE, EXPERIENCE, AND JUDGMENT.
4. IF UNUSUAL, CONFLICTING, OR EVEN APPARENTLY ODD CIRCUMSTANCES ARISE THE CONTRACTOR IS TO CONSULT WITH THE ENGINEER FOR A RESOLUTION BEFORE PROCEEDING WITH FINAL LAYOUT OR CONSTRUCTION.
5. CHANGES & DEVIATIONS ARE TO BE APPROVED IN WRITING IN ADVANCE OF CONSTRUCTION. CONTRACTOR IS TO KEEP A MARKUP COPY OF THE PLANS AND TO NOTE THEREON ALL CHANGES AND DEVIATIONS FROM THE PLANS.
6. ALL WORK TO BE PERFORMED IN A WORKMANLIKE MANNER.

I was not contacted about the changes and deviations noted herein, either before or during construction. I recently asked the Contractor's current superintendent, Hugh Robinson, for the mark-up plan set showing changes and was told it did not exist. Design addressed both practical and regulatory concerns.

Areas that were constructed less well than designed impair my ability to point to this project with pride as indicative of my work.

Items to be noted here:
In the following, "main entrance area" refers to the area of the east side of the building from the 2-ft change in floor elevation on the north over to the corner by the bike rack and the old "double door flush with the wall" main entrance, roughly 144 ft south. The change in floor elevation is about 23 ft north of the designed location of the north side of the new entrance vestibule. Somewhere between the south side of the design location of the vestibule and change in floor elevation was (and is) a single door opening outward.

TW

Per Se Engineering
Drainage, Utilities, & Site Design
2116 Lead Ave. SE - Albuquerque NM 87106 - 505.232-9394 -

1. The landscape islands in the north parking area are much deeper than per plan. From a drainage point of view they will work even better than planned. The question is whether they look good enough.

2. The plans call for rebuilding 4 landscape islands along the east side of the north-south drive aisle in front of the building. These are the two islands flanking the main entrance from Juan Tabo and the two immediately north. The islands needed to be rebuilt so that the paving in the north-south driveway would not have an unpleasant side slope. None of the islands was rebuilt and the paving has more sideslope than I think is desirable or appropriate. There does not appear to be a practical problem with drivability. Again the question is one of looks, and whether "bad" looks detract from the value of the project.

3. Where the new paving meets the old, the plans show neat, straight lines for joining. Here, particularly, General Note 6 ("WORKMANLIKE MANNER") is relevant. Originally all the joins were constructed messy; none was sawcut or otherwise made neat. Recently the join at the main entrance drive was improved somewhat but not, in my opinion, to the extent of looking good or workmanlike. All the other joins remain unattractive, in my judgement, but present no drivability problems.

4. The parking at the front of the building was designed with a HC access ramp into the curb at the middle of a large (18-ft wide) access aisle right in front the new main entrance. The new entrance had a "bumped-out" vestibule with double set of double doors opening eastward toward parking. A key feature of grading design provided about a foot of fall from finished floor elevation at the entrance down to the low point of the swale opposite the ramp. Maintaining a minimum 1/2 percent slope in this swale was a main reason repaving had to extend so far south.

   Without any notice to me, most of the parking layout along the east side of the building was changed, including many of the HC accessible spaces and aisles. None of the HC spaces or aisles looks excessively steep but without a revised plan to go with the as-built grade it is impossible to be completely sure. Also, the vestibule was constructed differing in size, location, and design from the approved plans; with exterior sliding doors on the north and south but no doors on the east. A single door swings out eastward about 7 ft east north of the vestibule. The HC access ramp is roughly opposite the center of the east face of the vestibule (no openings).

   In terms of drainage, having the HC ramp away from the main door openings is probably good, but the hinged door and the sliding door on the north side of the vestibule may present a practical problem, in being more vulnerable to runoff coming down the main drive from Juan Tabo. The affected parties must judge for themselves about the attractiveness of the revisions, particularly as to the concrete drainage swale, which is a change that impairs my ability to point to this project as an example of my work.

5. This item is possibly the most important and is related to possible problems with runoff reaching the building: <u>The sidewalk in the main entrance area was NOT rebuilt per the approved plans</u>. A strip of sidewalk roughly 7 ft wide adjacent to the building was not rebuilt at all, at least south of the vestibule.

   The plans show some of the existing spot elevations shot by the surveyor as well as the designed new spot elevations. (The symbol for eXisting elevations is a circle with an X. The symbol for new spot elevations is a spot, or dot.) The existing spot elevations show that near the south side of the main entrance area (near the bicycle rack and the old main entrance) the finished floor is lower than the sidewalk at the top of the nearby parking spaces. We took care in our plans to have the sidewalk rebuilt so that it would drain away from the building (rather than toward it, as previously). This is shown on Sheet D2 by Key Note F, which says "REMOVE EXIST. SIDEWALK & REPLACE TO GRADES SHOWN", and also by the new spot elevations.

   Per the plan received from Garlan Bryan prior to our design, the only openings in the remodeled main entrance area were to be the double doors at the entrance vestibule. As constructed, it appears that the vestibule entrance has been added and that both old doors remain, one of them the old main entrance.

TW

Apparently, in the past, the strip of sidewalk not rebuilt was covered with tiles over a thin layer (roughly 1/2 inch) of concrete over older sidewalk. The tiles are gone and the thin layer is broken up and broken out in several places, presenting an uneven surface that may be a safety hazard as well as unattractive. The drainage issue is the possibility of trapping water by the building.

6. The as-built survey by Harris Surveying indicates that the paving and/or concrete contractors frequently did not get grades within 3 or 4 inches of design. It is hard to think that a competent crew attempting to do a good job could have been so far off so often. My visual site inspection did not reveal any glaring problems, however. In areas that are flatter than design – especially where concrete slope is less than 0.5% or where pavement slope is less than 1.2% - I would anticipate minor puddles ("bird baths") along with shortened pavement life.

==========

If runoff reaching the building is a problem in the future, there are several possible solutions. An obvious one that I have mentioned on various occasions would be to force a "water block" at the main entrance from Juan Tabo, right near Juan Tabo. This would require some repaving and would function to traffic like a low, broad, speed bump.

Sincerely,

Tucker Green, PE

I accept all of the above "Items to be noted" as they have been constructed. I have the authority to accept them.

Traci Wolf, Defined Fitness — Date 3/3/09

I accept all of the above "Items to be noted" as they have been constructed. I have the authority to accept them.

Paul Blanchard, Sandia Plaza owners — Date 3/3/09

TW

CITY OF ALBUQUERQUE

Planning Department
Transportation Development Services Section

March 4, 2009

Garlan D. Bryan, Registered Architect
2403 San Mateo NE, Ste. W-1
Albuquerque, NM 87110

Re: Certification Submittal for Final Building Certificate of Occupancy for Defined Fitness Expansion and Renovation, [G-21 / D038]
3301 Juan Tabo NE
Architect's Stamp Dated 02/26/09

Dear Mr. Bryan:

The TCL / Letter of Certification submitted on March 4, 2009 is sufficient for acceptance by this office for final Certificate of Occupancy (C.O.). Notification has been made to the Building and Safety Section.

Sincerely,

Nilo E. Salgado-Fernandez, P.E.
Senior Traffic Engineer
Development and Building Services
Planning Department

c: Engineer
Hydrology file
CO Clerk

PO Box 1293
Albuquerque
NM 87103
www.cabq.gov

DRAINAGE AND TRANSPORTATION INFORMATION SHEET
(REV 12/2005)

G-21/D038

PROJECT TITLE: DEFINED FITNESS EXPANSION & RENOVATION ZONE MAP: ~~G-21-Z~~
~~DRB#~~: _____ EPC#: _____ WORK ORDER#: _____
AA # Project # 1000074
LEGAL DESCRIPTION: TRACT H-3-A LA REINA DE LOS ALTOS, UNIT NO. 2, SECTION 4 TOWNSHIP 10
CITY ADDRESS: 3301 JUAN TABO NE ALBUQUERQUE, N.M. 87111 NORTH, RANGE 4 EAST, N.M

ENGINEERING FIRM: McCORNACK ENGINEERING CONTACT: JM McCORNACK
ADDRESS: 2001 CARLISLE BLVD NE PHONE: 505-881-0570
CITY, STATE: ALBUQUERQUE, NM 87110 ZIP CODE: _____

OWNER: SANDIA PLAZA PARTNERS LLC CONTACT: _____
ADDRESS: 5850 EUBANK BLVD NE SUITE B-62 PHONE: 505-275-0000
CITY, STATE: ALBUQUERQUE, NM ZIP CODE: 87111

ARCHITECT: GARLAN BRYAN ARCHITECT CONTACT: GARLAN BRYAN
ADDRESS: 2403 SAN MATEO BLVD. SUITE W-1 PHONE: 505-884-9694
CITY, STATE: ALBUQUERQUE, N.M. ZIP CODE: 87110

SURVEYOR: PER SE ENGINEERING CONTACT: _____
ADDRESS: 2116 LEAD AVE. SE PHONE: 505-232-9394
CITY, STATE: ALBUQUERQUE, NM ZIP CODE: 87106

CONTRACTOR: BLANCHARD CONSTRUCTION CONTACT: _____
ADDRESS: 5850 EUBANK BLVD. NE SUITE B-62 PHONE: 505-275-0000
CITY, STATE: ALBUQUERQUE, NM ZIP CODE: 87111

TYPE OF SUBMITTAL:
_____ DRAINAGE REPORT
_____ DRAINAGE PLAN 1st SUBMITTAL
_____ DRAINAGE PLAN RESUBMITTAL
_____ CONCEPTUAL G & D PLAN
_____ GRADING PLAN
_____ EROSION CONTROL PLAN
_____ ENGINEER'S CERT (HYDROLOGY)
_____ CLOMR/LOMR
_____ TRAFFIC CIRCULATION LAYOUT
X ENGINEER'S CERT (TCL)
_____ ENGINEER'S CERT (DRB SITE PLAN)
_____ OTHER (SPECIFY)

CHECK TYPE OF APPROVAL SOUGHT:
_____ SIA/FINANCIAL GUARANTEE RELEASE
_____ PRELIMINARY PLAT APPROVAL
_____ S. DEV. PLAN FOR SUB'D APPROVAL
_____ S. DEV. FOR BLDG. PERMIT APPROVAL
_____ SECTOR PLAN APPROVAL
_____ FINAL PLAT APPROVAL
_____ FOUNDATION PERMIT APPROVAL
_____ BUILDING PERMIT APPROVAL
X CERTIFICATE OF OCCUPANCY (PERM)
_____ CERTIFICATE OF OCCUPANCY (TEMP)
_____ GRADING PERMIT APPROVAL
_____ PAVING PERMIT APPROVAL
_____ WORK ORDER APPROVAL
_____ OTHER (SPECIFY)

WAS A PRE-DESIGN CONFERENCE ATTENDED:
V YES
_____ NO
_____ COPY PROVIDED

DATE SUBMITTED: 3/4/09 BY: Robert Payne

RECEIVED
MAR 04 2009
HYDROLOGY

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage submittal. The particular nature, location, and scope to the proposed development defines the degree of drainage detail. One or more of the following levels of submittal may be required based on the following:

1. **Conceptual Grading and Drainage Plan:** Required for approval of Site Development Plans greater than five (5) acres and Sector Plans.
2. **Drainage Plans:** Required for building permits, grading permits, paving permits and site plans less than five (5) acres.
3. **Drainage Report:** Required for subdivision containing more than ten (10) lots or constituting five (5) acres or more.

Garlan Bryan Architect

2403 San Mateo Blvd. NE
Suite W-1
Albuquerque, N.M. 87110
Phone: 505.884.9694
Fax: 505.872.0437

February 26, 2009

Project: 3301 Juan Tabo,
Defined Fitness Expansion and Renovation
Phase 1 and 2

TRAFFIC CERTIFICATION

I, Garlan Bryan, Architect, of the firm Garlan Bryan Architect, hereby certify that this project is in substantial compliance with and in accordance with the design intent of the DRB, AA, or TCL approved plan dated 12/29/2007. The record information edited onto the original design document has been obtained by Garlan Bryan Architect. I further certify that I have personally visited the project site on 2/24/2009 and have determined by visual inspection that the survey data provided is representative of actual site conditions and is true and correct to the best of my knowledge and belief. This certification is submitted in support of a request for a final certificate of occupancy.

Exceptions:

None

Deficiencies:

None

The record information presented hereon is not necessarily complete and intended only to verify substantial compliance of the traffic aspects of this project. Those relying on the record document are advised to obtain independent verification of its accuracy before using it for any other purpose.

(Garlan Bryan, Architect)

2-26-08

(Date)

RECEIVED
MAR 04 2009
HYDROLOGY SECTION

STATE OF NEW MEXICO
GARLAN D. BRYAN
2-26-09
No. 144
REGISTERED ARCHITECT

CITY OF ALBUQUERQUE

March 27, 2008

Tucker Green, PE
Per Se Engineering
2116 Lead Ave SE
Albuquerque, NM 87106

Re: Sandia Plaza – Defined Fitness Grading and Drainage Plan
Engineer's Stamp dated 2-21-08 (G21/D38)

Dear Mr. Green,

Based upon the information provided in your submittal dated 2-21-08, the above referenced plan is approved as amended. This is now the plan that must be certified for Certificate of Occupancy.

If you have any questions, you can contact me at 924-3986

Sincerely,

Bradley L. Bingham

Bradley L. Bingham, PE
Principal Engineer, Planning Dept
Development and Building Services

C: file

PO Box 1293
Albuquerque
NM 87103
www.cabq.gov

DRAINAGE REPORT FOR
SANDIA PLAZA IMPROVEMENTS: DEFINED FITNESS EXPANSION & IMPROVEMENTS

PROJECT LOCATION: 3301 JUAN TABO BLVD. NE, ALBUQUERQUE, NM, (APX NE CORNER OF JUAN TABO & CANDELARIA, OPPOSITE LOWE'S HOME IMPROVEMENT CENTER

LEGAL DESCRIPTION: A PORTION OF TRACT H-3-A, LA REINA DE LOS ALTOS, UNIT 2

FLOOD ZONE: NOT IN 100-YEAR FLOOD ZONE. SEE MAP.

THE SITE HAS BEEN COMPLETELY DEVELOPED SINCE SOME TIME BACK IN THE 1970'S, AT WHICH TIME THE CITY WAS NOT REQUIRING OR KEEPING TRACK OF DRAINAGE REPORTS THE WAY IT DOES NOW. IN 1998 TIERRA WEST PREPARED A REPORT FOR THE ADDITION OF A KRISPY KREME DONUT STORE (NOW OUT OF BUSINESS AND VACANT) NEAR THE NORTHEAST PORTION OF THE SITE (DRAINAGE FILE G21-D38). THAT REPORT ANALYZED THE OVERALL SITE AS 90% LAND CLASS "D" (IMPERVIOUS) AND 10% CLASS "B" (LANDSCAPING).

THE TIERRA WEST REPORT AND SUBSEQUENT WRITTEN DISCUSSION CLARIFIED THAT IT WAS ACCEPTABLE FOR MUCH OF SANDIA PLAZA TO DRAIN ONTO THE APARTMENT COMPLEX ADJACENT ON THE WEST. THE PARKING NORTH OF THE MAIN (NOW DEFINED FITNESS) BUILDING AND MUCH OF THE KRISPY KREME SITE DRAINED TO AN OPENING IN THE PERIMETER WALL NEAR THE NORTHWEST SITE CORNER AND THEN ONTO PAVEMENT AT THE ADJACENT APARTMENT COMPLEX, THEN EVENTUALLY OUT TO CANDELARIA BLVD. DRAINAGE FROM PART OF THE ROOF, PAVEMENT BETWEEN THE MAIN BUILDING AND THE WEST WALL, AND THE PAVEMENT DIRECTLY SOUTH OF THE MAIN BUILDING DRAINED TOWARD THE SOUTHWEST CORNER OF THE SITE AND THEN ONTO THE AUTOZONE SITE. FROM THE AUTOZONE SITE THIS DRAINAGE WENT TO CANDELARIA BLVD, WITH SOME POSSIBLY SPILLING ONTO THE APARTMENT COMPLEX SITE. MOST OF THE SITE, HOWEVER, DRAINED OUT THE WEST DRIVEWAY, EAST OF AUTOZONE, THEN ONTO CANDELARIA BLVD.

SINCE THEN PART OF THE MAIN PRE-1998 BUILDING DEVELOPED STRUCTURAL PROBLEMS AND WAS TORN DOWN. AERIAL PHOTOS FROM THE CITY'S GIS WEB SITE SHOW THE OLD BUILDING EXTENDING NORTH PAST THE NORTH SIDE OF THE KRISPY KREME BUILDING, FARTHER THAN THE WORK PROPOSED HERE, AND THE AREA NORTH OF THAT AS BEING PAVING WITHOUT LANDSCAPING.

THE WORK PROPOSED IN THE PRESENT PROJECT BASICALLY REPLACES PART OF THAT FORMER BUILDING WITH NEW TENANT SPACE AND PROVIDES SIGNIFICANTLY MORE LANDSCAPING THAN EXISTED PREVIOUSLY. THE NEW STRUCTURE EXTENDS TO ROUGHLY THE SOUTH SIDE OF THE KRISPY KREME BUILDING. THUS THIS PROJECT WILL REDUCE RUNOFF FROM THAT WHICH WOULD OCCUR UNDER EXISTING, LONG-STANDING, PREVIOUSLY APPROVED CONDITIONS. DRAINAGE PATTERNS ARE ESSENTIALLY UNCHANGED EXCEPT THAT RUNOFF FROM THE KRISPY KREME SITE (AND POSSIBLY ALSO FROM THE MOTORCYLE DEALERSHIP NORTH OF KRISPY KREME) WILL GO OUT THE WEST DRIVEWAY RATHER THAN ONTO THE APARTMENT COMPLEX BY WAY OF THE WALL OPENING IN THE NORTHWEST CORNER.

CALCULATIONS INCLUDED WITH THIS SUBMITTAL INDICATE THAT THE TOTAL LANDSCAPING TO BE PROVIDED ON THE PROJECT SITE (I.E. EXCLUSIVE OF THE KRISPY KREME SITE) IS MORE THAN THE 10% OF THE NET AREA (I.E. EXCLUSIVE OF THE BUILDING AREA) REQUIRED BY THE ZONING ORDINANCE BUT JUST SLIGHTLY LESS (9.62%) THAN THE PREVIOUSLY (AND APPARENTLY INACCURATELY) CLAIMED 10% OF THE TOTAL SITE AREA. SINCE THE LANDSCAPE AREA IS INCREASED AND THE IMPERVIOUS AREA IS DECREASED, RUNOFF WILL ACTUALLY BE REDUCED BOTH IN PEAK RATE AND IN TOTAL VOLUME. PLASTIC WILL NOT BE USED UNDER THE LANDSCAPING

FOR THIS PROJECT. IN KEEPING WITH PREVIOUS REPORTS, LANDSCAPING FOR THIS PROJECT, WHETHER XERIC OR NOT, IS ANALYZED AS TREATMENT "B" EXCEPT FOR THE STEEP AREA BETWEEN THE BUILDING AND THE NORTH PARKING AREA, WHICH IS ANALYZED AS TREATMENT "C".

THE LANDSCAPE ISLANDS IN THE NORTH PARKING AREAS ARE DESIGNED TO FUNCTION AS MINI RESERVOIRS, AND THUS TO REDUCE THE PEAK RUNOFF RATE AND PROVIDE A SMALL AMOUNT OF WATER HARVESTING. HOWEVER, THE STORAGE CAPACITIES ARE SO SMALL AND THE HYDRAULIC CHARACTERISTICS ARE SO SUBJECT TO MINOR CHANGES IN CONSTRUCTION THAT THE ISLANDS WERE NOT ANALYZED AS RESERVOIRS. THE EFFECT IS THERE, BUT TO SOME SMALL AND UNKNOWN EXTENT.

THE NEW BUILDING EXTENDS THE EXISTING 5624.33 FINISHED FLOOR ELEVATION APX. 45 FT FARTHER NORTH, WITH THE RESULT THAT THE NORTH PARKING AREA, WHICH DRAINS TO AN EXISTING WALL OPENING NEAR THE NORTHWEST CORNER OF THE SITE, IS ABOUT 2 FEET HIGHER THAN THE FINISHED FLOOR. THE INTERVENING LANDSCAPE AREA RECEIVES RUNOFF FROM A SMALL SERVICE DRIVEWAY AND SOME ADJACENT SIDEWALK IN ADDITION TO THE RAIN THAT FALLS DIRECTLY ON IT. TLANDSCAPE AREA NORMALLY HAS NO OUTFLOW BUT IT DOES HAVE PROVISION FOR OVERFLOW BELOW FINISHED FLOOR ELEVATION. THE STORAGE CAPACITY AT ELEVATION 23.2 (JUST LOWER THAN EDGE OF SIDEWALK) IS 2257 CF (AVERAGE END AREA METHOD) WHILE THE STORAGE NEEDED FOR THE REGULATORY 100-YR, 10-DAY STORM 1S 1835 CF. AT ABOUT ELEV 24.02. OUTFLOW WOULD START SLIGHTLY BELOW THIS, AT THE INVERT OF THE SIDEWALK CULVERT AS SHOWN ON THE PLAN.

DETAILED RUNOFF CALCULATIONS FOR VARIOUS CONDITIONS ARE PROVIDED WITH THIS REPORT. FOLLOWING ARE SEVERAL KEY ITEMS FOR THE REGULATORY 100-YEAR STORM ON THE PROJECT SITE (DOES NOT INCLUDE KRISPY KREME SITE):

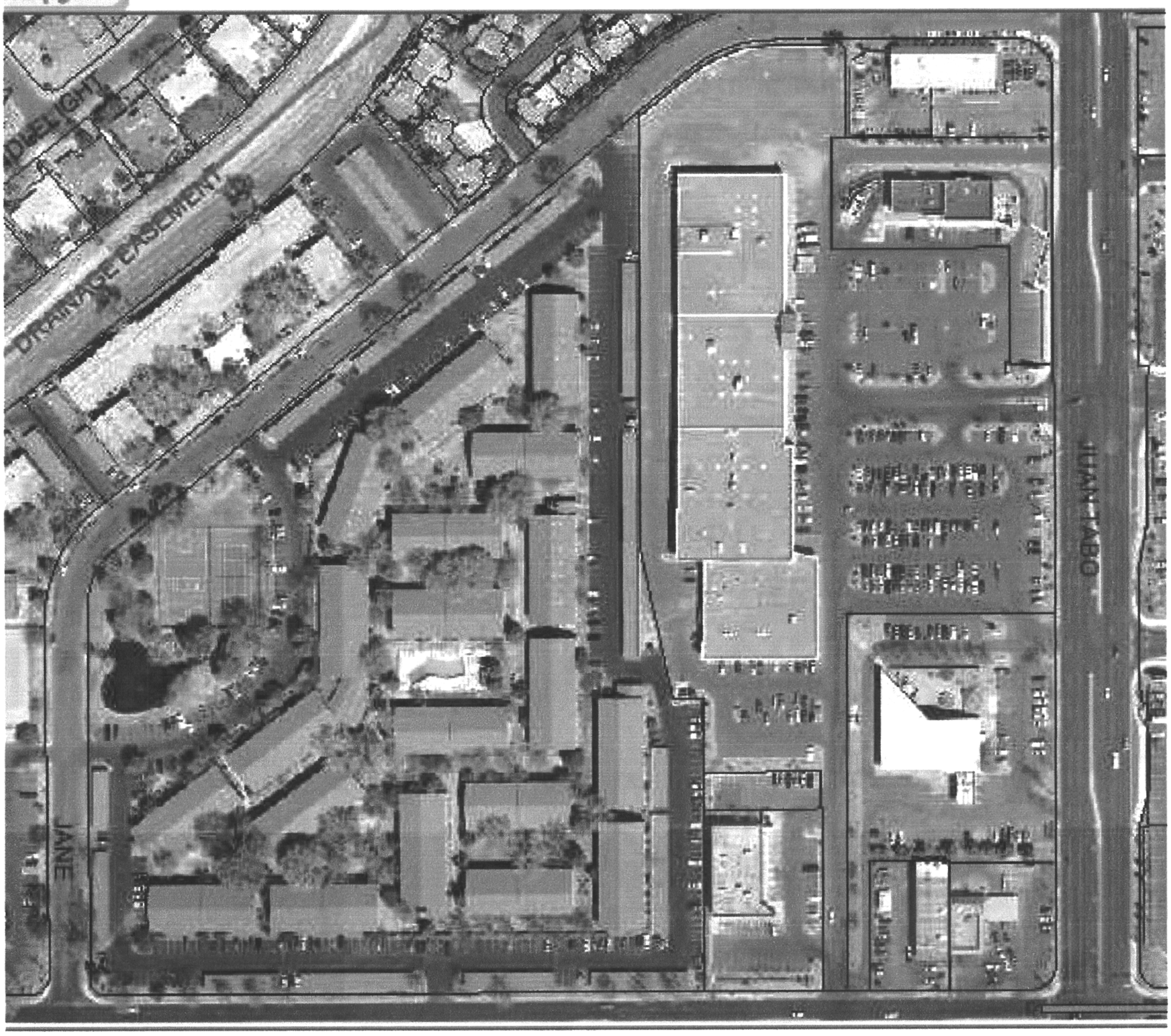
EXISTING (PRE-DEMOLITION) CONDITIONS Qpeak,cfs	37.85
PROPOSED CONDITONS, Qpeak,cfs	
TOTAL SITE	37.01
TO EXIST DRAINAGE OPENING NEAR NW CORNER	4.33
TO NO-OUTLET LANDSCAPE AT N SIDE OF BLDG.	0.77
10-DAY VOLUME, cf	1835

END OF REPORT TEXT

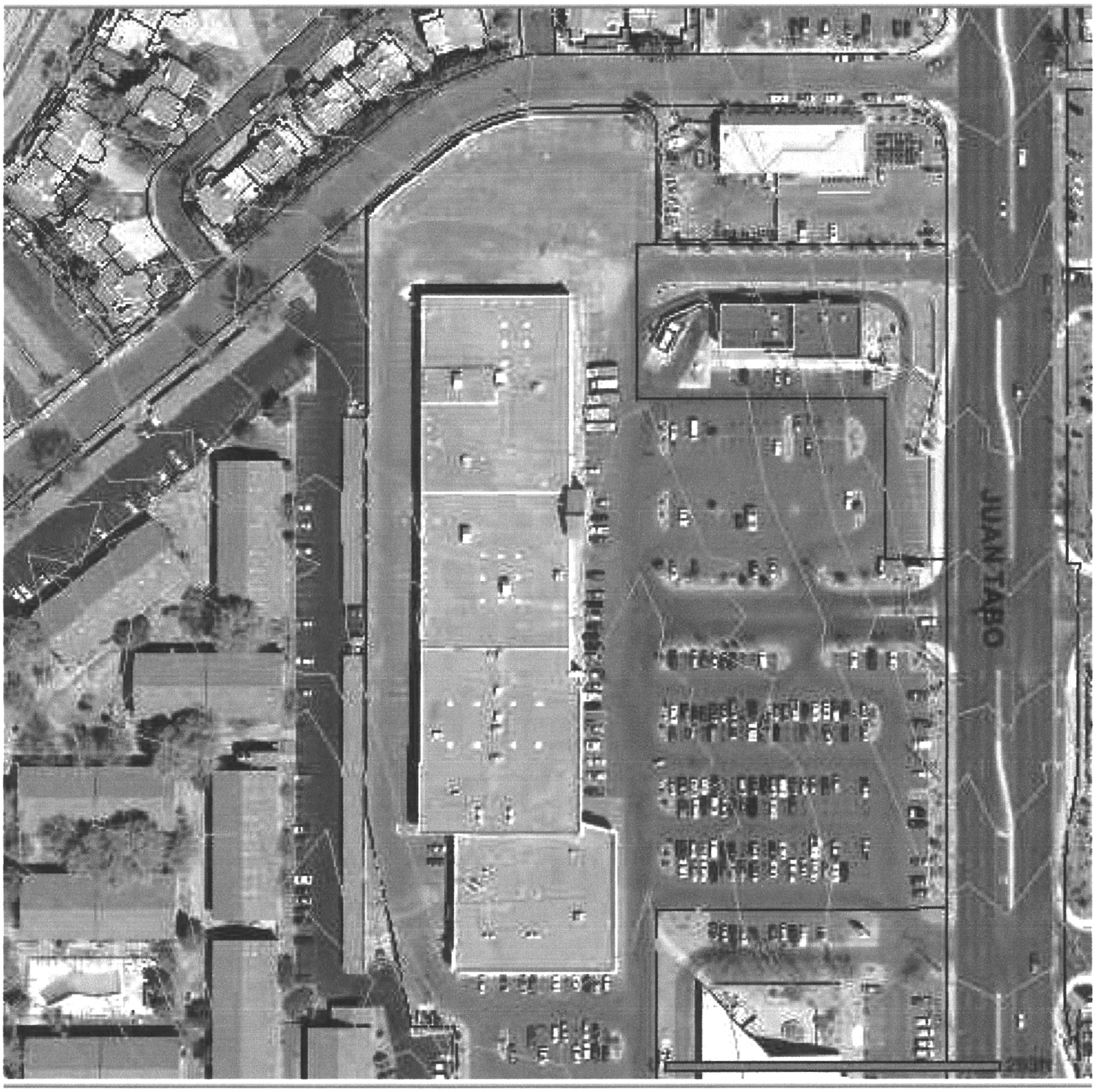
APPENDIX

.BUQUERQUE
:abq.gov

ALBUQUERQUE GIS DATA WEBSITE



JERQUE GIS DATA WEBSITE




JUAN TABO

PROJECT: DEFINED FITNESS @ 3301 JUAN TABO NE, ALBUQUERQUE, NM

ALBUQUERQUE, NM (1/93) CRITERIA - D.P.M. SIMPLE PROCEDURE FOR <= 40 ACRES (ASSUMES Tc=0.2hr =12min)
BASIC TREATMENT CLASSES: A=UNDISTURBED, B=LAWNS, C=UNPAVED ROADS or STEEP B, D=ROOFS,PAVEMENT: SEE DPM 22.2 P A-5
PX100-6 = PRECIPITATION EXCESS FROM 100-YEAR 6-HOUR STORM; PX10-6 =SAME FOR 10-YEAR STORM
VOL10D = VOLUME OF RUNOFF FROM 10-DAY STORM; APPROXIMATE "6-HR" HYDRGRAPH PER DPM 22.2 SECTION A.8

PROJECT SITE, EXISTING CONDITIONS (BEFORE PART OF BUILDING DEMOLISHED)

NO LANDSCAPING NORTH OF BUILDING; LANDSCAPING AS TREATMENT "B"

Storm,yr 100	Zone 4			Qp6,cfs 37.85			VOL1D,cf 87,802			SF,total 320,077	
Rain, Inches	TRTMT CLASS	AREA SQ FT	AREA ACRES	PX100-6 INCHES	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR CU FT	VOL1D CU FT	VOL4D CU FT	VOL10D AC-FT	TRTMT PERCENT
0.2 hr 1.12	A	0.0	0.0000	0.80	2.20	0.000	0	0	0	0	0.00
1 hr 2.23	B	13,608.0	0.3124	1.08	2.92	0.912	1,225	1,225	1,225	1,225	4.25
6 hr 2.90	C	0.0	0.0000	1.46	3.73	0.000	0	0	0	0	0.00
1 day 3.65	D	306,469.0	7.0356	2.64	5.25	36.937	67,423	86,577	113,394	145,317	95.75
4 day 4.70	TOTAL	320,077.0	7.3480	2.574	5.151	37.849	68,648	87,802	114,618	146,542	100.00
10 day 5.95		SQ MI>	0.0114812	^Average	per acre^	AC-FT>	1.5759	2.0157	2.6313	3.3641	<AC-FT
Apx. hydgrograph	Tconc 0.20		T Base 0.81		T Peak 0.19		Peak Lasts 0.24		Hydrograph Qavg, cfs 19.92		

PROJECT SITE, EXISTING CONDITIONS (BEFORE PART OF BUILDING DEMOLISHED)

NO LANDSCAPING NORTH OF BUILDING; ALL LANDSCAPING AS TREATMENT "C"

Storm,yr 100	Zone 4			Qp6,cfs 38.10			VOL1D,cf 88,233			SF,total 320,077	
Rain, Inches	TRTMT CLASS	AREA SQ FT	AREA ACRES	PX100-6 INCHES	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR CU FT	VOL1D CU FT	VOL4D CU FT	VOL10D AC-FT	TRTMT PERCENT
0.2 hr 1.12	A	0.0	0.0000	0.80	2.20	0.000	0	0	0	0	0.00
1 hr 2.23	B	0.0	0.0000	1.08	2.92	0.000	0	0	0	0	0.00
6 hr 2.90	C	13,608.0	0.3124	1.46	3.73	1.165	1,656	1,656	1,656	1,656	4.25
1 day 3.65	D	306,469.0	7.0356	2.64	5.25	36.937	67,423	86,577	113,394	145,317	95.75
4 day 4.70	TOTAL	320,077.0	7.3480	2.590	5.185	38.102	69,079	88,233	115,049	146,973	100.00
10 day 5.95		SQ MI>	0.0114812	^Average	per acre^	AC-FT>	1.5858	2.0256	2.6412	3.3740	<AC-FT
Apx. hydgrograph	Tconc 0.20		T Base 0.81		T Peak 0.19		Peak Lasts 0.24		Hydrograph Qavg, cfs 20.05		

ONLY STEEP LANDSCAPING AT N . SIDE OF BUILDING AS TREATMENT "C"

Storm,yr 100	Zone 4			Qp6,cfs 37.01			VOL1D,cf 84,635			SF,total 320,077	
Rain, inches	TRTMT CLASS	AREA SQ FT	AREA ACRES	PX100-6 INCHES	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR CU FT	VOL1D CU FT	VOL4D CU FT	VOL10D AC-FT	TRTMT PERCENT
0.2 hr 1.12	A	0.0	0.0000	0.80	2.20	0.000	0	0	0	0	0.00
1 hr 2.23	B	26,323.0	0.6043	1.08	2.92	1.765	2,369	2,369	2,369	2,369	8.22
6 hr 2.90	C	4,476.0	0.1028	1.46	3.73	0.383	545	545	545	545	1.40
1 day 3.65	D	289,278.0	6.6409	2.64	5.25	34.865	63,641	81,721	107,033	137,166	90.38
4 day 4.70	TOTAL	320,077.0	7.3480	2.495	5.037	37.013	66,555	84,635	109,947	140,080	100.00
10 day 5.95		SQ MI>	0.0114812	^Average	per acre^	AC-FT>	1.5279	1.9429	2.5240	3.2158	<AC-FT
Apx. hydgrograph	Tconc 0.20		T Base 0.82		T Peak 0.20		Peak Lasts 0.23		Hydrograph Qavg, cfs 19.32		

PROJECT SITE, PROPOSED CONDITIONS

ALL LANDSCAPING AS TREATMENT "C"

Storm,yr 100	Zone 4			Qp6,cfs 37.50			VOL1D,cf 85,468			SF,total 320,077	
Rain, inches	TRTMT CLASS	AREA SQ FT	AREA ACRES	PX100-6 INCHES	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR CU FT	VOL1D CU FT	VOL4D CU FT	VOL10D AC-FT	TRTMT PERCENT
0.2 hr 1.12	A	0.0	0.0000	0.80	2.20	0.000	0	0	0	0	0.00
1 hr 2.23	B	0.0	0.0000	1.08	2.92	0.000	0	0	0	0	0.00
6 hr 2.90	C	30,799.0	0.7070	1.46	3.73	2.637	3,747	3,747	3,747	3,747	9.62
1 day 3.65	D	289,278.0	6.6409	2.64	5.25	34.865	63,641	81,721	107,033	137,166	90.38
4 day 4.70	TOTAL	320,077.0	7.3480	2.526	5.104	37.502	67,388	85,468	110,780	140,913	100.00
10 day 5.95		SQ MI>	0.0114812	^Average	per acre^	AC-FT>	1.5470	1.9621	2.5432	3.2349	<AC-FT
Apx. hydgrograph	Tconc 0.20		T Base 0.82		T Peak 0.20		Peak Lasts 0.23		Hydrograph Qavg, cfs 19.56		

LANDSC APE AREA JUST NORTH OF BUILDING - "STEEP" LS AS TREATMENT "C":
100-YR RUNOFF DOES NOT LEAVE THIS AREA

Storm,yr 100	Zone 4			Qp6,cfs 0.77			VOL1D,cf 1,363			SF,total 7,949	
Rain, inches	TRTMT CLASS	AREA SQ FT	AREA ACRES	PX100-6 INCHES	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR CU FT	VOL1D CU FT	VOL4D CU FT	VOL10D AC-FT	TRTMT PERCENT
0.2 hr 1.12	A	0.0	0.0000	0.80	2.20	0.000	0	0	0	0	0.00
1 hr 2.23	B	0	0.0000	1.08	2.92	0.000	0	0	0	0	0.00
6 hr 2.90	C	5,488.0	0.1260	1.46	3.73	0.470	668	668	668	668	69.04
1 day 3.65	D	2,461.0	0.0565	2.64	5.25	0.297	541	695	911	1,167	30.96
4 day 4.70	TOTAL	7,949.0	0.1825	1.825	4.201	0.767	1,209	1,363	1,578	1,835	100.00
10 day 5.95		SQ MI>	0.0002851	^Average	per acre^	AC-FT>	0.0278	0.0313	0.0362	0.0421	<AC-FT
Apx. hydgrograph	Tconc 0.20		T Base 0.84		T Peak 0.25		Peak Lasts 0.08		Hydrograph Qavg, cfs 0.35		

TO EXISTING DRAINAGE OPENING NEAR NW CORNER

Storm,yr 100	Zone 4			Qp6,cfs 4.33			VOL1D,cf 9,532			SF,total 38,257	
Rain, inches	TRTMT CLASS	AREA SQ FT	AREA ACRES	PX100-6 INCHES	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR CU FT	VOL1D CU FT	VOL4D CU FT	VOL10D AC-FT	TRTMT PERCENT
0.2 hr 1.12	A	0.0	0.0000	0.80	2.20	0.000	0	0	0	0	0.00
1 hr 2.23	B	0	0.0000	1.08	2.92	0.000	0	0	0	0	0.00
6 hr 2.90	C	7,934.0	0.1821	1.46	3.73	0.679	965	965	965	965	20.74
1 day 3.65	D	30,323.0	0.6961	2.64	5.25	3.655	6,671	8,566	11,220	14,378	79.26
4 day 4.70	TOTAL	38,257.0	0.8783	2.395	4.935	4.334	7,636	9,532	12,185	15,343	100.00
10 day 5.95		SQ MI>	0.0013723	^Average	per acre^	AC-FT>	0.1753	0.2188	0.2797	0.3522	<AC-FT
Apx. hydgrograph	Tconc 0.20		T Base 0.82		T Peak 0.21		Peak Lasts 0.20		Hydrograph Qavg, cfs 2.22		

PROJECT: DEFINED FITNESS @ 3301 JUAN TABO NE, ALBUQUERQUE, NM

ALBUQUERQUE, NM (1/93) CRITERIA - D.P.M. SIMPLE PROCEDURE FOR <= 40 ACRES (ASSUMES Tc=0.2hr =12min)

BASIC TREATMENT CLASSES: A=UNDISTURBED, B=LAWNS, C=UNPAVED ROADS or STEEP B, D=ROOFS,PAVEMENT: SEE DPM 22.2 P A-5

PX100-6 = PRECIPITATION EXCESS FROM 100-YEAR 6-HOUR STORM; PX10-6 =SAME FOR 10-YEAR STORM

VOL10D = VOLUME OF RUNOFF FROM 10-DAY STORM; APPROXIMATE "6-HR" HYDRGRAPH PER DPM 22.2 SECTION A.8

PROJECT SITE, EXISTING CONDITIONS (BEFORE PART OF BUILDING DEMOLISHED)

NO LANDSCAPING NORTH OF BUILDING; LANDSCAPING AS TREATMENT "B"

Storm,yr 10		Zone 4			Qp6,cfs 25.57			VOL1D,cf 56,452			SF,total 320,077	
Rain,	inches	TRTMT CLASS	AREA SQ FT	AREA ACRES	PX10-6 INCHES	QP10-6 CFS/AC	QP10-6 CFS	VOL6HR CU FT	VOL1D CU FT	VOL4D CU FT	VOL10D AC-FT	TRTMT PERCENT
0.2 hr	0.75	A	0.0	0.0000	0.28	0.87	0.000	0	0	0	0	0.00
1 hr	1.49	B	13,608.0	0.3124	0.46	1.45	0.453	522	522	522	522	4.25
6 hr	1.93	C	0.0	0.0000	0.73	2.26	0.000	0	0	0	0	0.00
1 day	2.43	D	306,469.0	7.0356	1.69	3.57	25.117	43,161	55,931	73,808	95,261	95.75
4 day	3.13	TOTAL	320,077.0	7.3480	1.638	3.480	25.570	43,683	56,452	74,330	95,782	100.00
10 day	3.97		SQ MI>	0.0114812	^Average	per acre^	AC-FT>	1.0028	1.2960	1.7064	2.1989	<AC-FT
Apx. hydgrograph		Tconc 0.20		T Base 0.75		T Peak 0.19		Peak Lasts 0.24		Hydrograph Qavg, cfs 12.68		

PROJECT SITE, EXISTING CONDITIONS (BEFORE PART OF BUILDING DEMOLISHED)

NO LANDSCAPING NORTH OF BUILDING; ALL LANDSCAPING AS TREATMENT "C"

Storm,yr 10		Zone 4			Qp6,cfs 25.82			VOL1D,cf 56,758			SF,total 320,077	
Rain,	inches	TRTMT CLASS	AREA SQ FT	AREA ACRES	PX10-6 INCHES	QP10-6 CFS/AC	QP10-6 CFS	VOL6HR CU FT	VOL1D CU FT	VOL4D CU FT	VOL10D AC-FT	TRTMT PERCENT
0.2 hr	0.75	A	0.0	0.0000	0.28	0.87	0.000	0	0	0	0	0.00
1 hr	1.49	B	0.0	0.0000	0.46	1.45	0.000	0	0	0	0	0.00
6 hr	1.93	C	13,608.0	0.3124	0.73	2.26	0.706	828	828	828	828	4.25
1 day	2.43	D	306,469.0	7.0356	1.69	3.57	25.117	43,161	55,931	73,808	95,261	95.75
4 day	3.13	TOTAL	320,077.0	7.3480	1.649	3.514	25.823	43,989	56,758	74,636	96,089	100.00
10 day	3.97		SQ MI>	0.0114812	^Average	per acre^	AC-FT>	1.0098	1.3030	1.7134	2.2059	<AC-FT
Apx. hydgrograph		Tconc 0.20		T Base 0.75		T Peak 0.19		Peak Lasts 0.24		Hydrograph Qavg, cfs 12.77		

PROJECT SITE, PROPOSED CONDITIONS

ONLY STEEP LANDSCAPING AT N . SIDE OF BUILDING AS TREATMENT "C"

Storm,yr 10	Zone 4			Qp6,cfs 24.82			VOL1D,cf 54,075			SF,total 320,077	
Rain, inches	TRTMT CLASS	AREA SQ FT	AREA ACRES	PX10-6 INCHES	QP10-6 CFS/AC	QP10-6 CFS	VOL6HR CU FT	VOL1D CU FT	VOL4D CU FT	VOL10D AC-FT	TRTMT PERCENT
0.2 hr 0.75	A	0.0	0.0000	0.28	0.87	0.000	0	0	0	0	0.00
1 hr 1.49	B	26,323.0	0.6043	0.46	1.45	0.876	1,009	1,009	1,009	1,009	8.22
6 hr 1.93	C	4,476.0	0.1028	0.73	2.26	0.232	272	272	272	272	1.40
1 day 2.43	D	289,278.0	6.6409	1.69	3.57	23.708	40,740	52,793	69,668	89,917	90.38
4 day 3.13	TOTAL	320,077.0	7.3480	1.575	3.377	24.816	42,021	54,075	70,949	91,199	100.00
10 day 3.97		SQ MI>	0.0114812	^ Average	per acre ^	AC-FT>	0.9647	1.2414	1.6288	2.0936	<AC-FT
Apx. hydgrograph	Tconc 0.20		T Base 0.76		T Peak 0.20		Peak Lasts 0.23		Hydrograph Qavg, cfs 12.20		

PROJECT SITE, PROPOSED CONDITIONS

ALL LANDSCAPING AS TREATMENT "C"

Storm,yr 10	Zone 4			Qp6,cfs 25.31			VOL1D,cf 54,667			SF,total 320,077	
Rain, inches	TRTMT CLASS	AREA SQ FT	AREA ACRES	PX10-6 INCHES	QP10-6 CFS/AC	QP10-6 CFS	VOL6HR CU FT	VOL1D CU FT	VOL4D CU FT	VOL10D AC-FT	TRTMT PERCENT
0.2 hr 0.75	A	0.0	0.0000	0.28	0.87	0.000	0	0	0	0	0.00
1 hr 1.49	B	0.0	0.0000	0.46	1.45	0.000	0	0	0	0	0.00
6 hr 1.93	C	30,799.0	0.7070	0.73	2.26	1.598	1,874	1,874	1,874	1,874	9.62
1 day 2.43	D	289,278.0	6.6409	1.69	3.57	23.708	40,740	52,793	69,668	89,917	90.38
4 day 3.13	TOTAL	320,077.0	7.3480	1.598	3.444	25.306	42,614	54,667	71,541	91,791	100.00
10 day 3.97		SQ MI>	0.0114812	^ Average	per acre ^	AC-FT>	0.9783	1.2550	1.6424	2.1072	<AC-FT
Apx. hydgrograph	Tconc 0.20		T Base 0.75		T Peak 0.20		Peak Lasts 0.23		Hydrograph Qavg, cfs 12.37		

LANDSC APE AREA JUST NORTH OF BUILDING - "STEEP" LS AS TREATMENT "C":

100-YR RUNOFF DOES NOT LEAVE THIS AREA

Storm,yr 10	Zone 4			Qp6,cfs 0.49			VOL1D,cf 783			SF,total 7,949	
Rain, inches	TRTMT CLASS	AREA SQ FT	AREA ACRES	PX10-6 INCHES	QP10-6 CFS/AC	QP10-6 CFS	VOL6HR CU FT	VOL1D CU FT	VOL4D CU FT	VOL10D AC-FT	TRTMT PERCENT
0.2 hr 0.75	A	0.0	0.0000	0.28	0.87	0.000	0	0	0	0	0.00
1 hr 1.49	B	0	0.0000	0.46	1.45	0.000	0	0	0	0	0.00
6 hr 1.93	C	5,488.0	0.1260	0.73	2.26	0.285	334	334	334	334	69.04
1 day 2.43	D	2,461.0	0.0565	1.69	3.57	0.202	347	449	593	765	30.96
4 day 3.13	TOTAL	7,949.0	0.1825	1.027	2.666	0.486	680	783	927	1,099	100.00
10 day 3.97		SQ MI>	0.0002851	^ Average	per acre ^	AC-FT>	0.0156	0.0180	0.0213	0.0252	<AC-FT
Apx. hydgrograph	Tconc 0.20		T Base 0.73		T Peak 0.25		Peak Lasts 0.08		Hydrograph Qavg, cfs 0.20		

TO EXISTING DRAINAGE OPENING NEAR NW CORNER

Storm,yr 10	Zone 4			Qp6,cfs 2.90			VOL1D,cf 6,017			SF,total 38,257	
Rain, inches	TRTMT CLASS	AREA SQ FT	AREA ACRES	PX10-6 INCHES	QP10-6 CFS/AC	QP10-6 CFS	VOL6HR CU FT	VOL1D CU FT	VOL4D CU FT	VOL10D AC-FT	TRTMT PERCENT
0.2 hr 0.75	A	0.0	0.0000	0.28	0.87	0.000	0	0	0	0	0.00
1 hr 1.49	B	0	0.0000	0.46	1.45	0.000	0	0	0	0	0.00
6 hr 1.93	C	7,934.0	0.1821	0.73	2.26	0.412	483	483	483	483	20.74
1 day 2.43	D	30,323.0	0.6961	1.69	3.57	2.485	4,270	5,534	7,303	9,425	79.26
4 day 3.13	TOTAL	38,257.0	0.8783	1.491	3.298	2.897	4,753	6,017	7,785	9,908	100.00
10 day 3.97		SQ MI>	0.0013723	^ Average	per acre ^	AC-FT>	0.1091	0.1381	0.1787	0.2275	<AC-FT
Apx. hydgrograph	Tconc 0.20		T Base 0.75		T Peak 0.21		Peak Lasts 0.20		Hydrograph Qavg, cfs 1.38		

Defined Fitness, 3301 Juan Tabo NE Albuquerque NM
Landscape area north of new construction
Average end area method is most appropriate this long, narrow location

"CONE" FRUSTUM / GEOMETRIC MEAN AREA					AV END AREA			AVERAGE	
ELEV FT	AREA	DVOL CONE	VOL FT^3	VOL AC-FT	DVOL AV ARE	VOL FT^3	VOL AC-FT	VOL FT^3	VOL AC-FT
24.2	2,596	466	2154	0.049444	467	2257	0.051816	2205	0.050630
24	2,072	1391	1688	0.038750	1440	1790	0.041100	1739	0.039925
23	807	297	297	0.006824	351	351	0.008053	324	0.007439
22.2	70		0	0.000000		0	0.000000	0	0.000000

elev @ 10-day vol = 1835cf

"CONE" FRUSTUM / GEOMETRIC MEAN AREA					AV END AREA		
ELEV FT	AREA	DVOL CONE	VOL FT^3	VOL AC-FT	DVOL AV ARE	VOL FT^3	VOL AC-FT
24.019	2,596	44	1732	0.039766	44	1835	0.042118
24	2,072	1391	1688	0.038750	1440	1790	0.041100
23	807	297	297	0.006824	351	351	0.008053
22.2	70		0	0.000000		0	0.000000

11

CITY OF ALBUQUERQUE

December 24, 2007

Tucker Green, PE
Per Se Engineering
2116 Lead Ave SE
Albuquerque, NM 87106

Re: Sandia Plaza – Defined Fitness Grading and Drainage Plan
Engineer's Stamp dated 12-23-07 (G21/D38)

Dear Mr. Green,

Based upon the information provided in your submittal dated 12-24-07, the above referenced plan is approved for Building Permit. Please attach a copy of this approved plan to the construction sets prior to sign-off by Hydrology.

Also, prior to Certificate of Occupancy release, Engineer Certification of the grading plan per the DPM checklist will be required.

If you have any questions, you can contact me at 924-3986

Sincerely,

Bradley L. Bingham, PE
Principal Engineer, Planning Dept
Development and Building Services

C: file

P.O. Box 1293

Albuquerque

New Mexico 87103

www.cabq.gov

DRAINAGE AND TRANSPORTATION INFORMATION SHEET
(Rev. 12/05)

PROJECT TITLE: SANDIA PLAZA Improvements ZONE MAP/DRG. FILE #: G-21-Z
DRB#: _____ EPC#: 1000074 (PREVIOUS) WORK ORDER#: _____

LEGAL DESCRIPTION: TRACT H-3-A LA RENA DE LOS ACLOS, UNIT 2
CITY ADDRESS: 3301 JUAN TABO N.E.

ENGINEERING FIRM: PER SE ENGINEERING. CONTACT: tucker Green
ADDRESS: 2116 LEAD AVE. SE PHONE: 232-9394
CITY, STATE: ALBUQ. NM ZIP CODE: 87106

OWNER: SANDIA PLAZA PARTNERS LLC CONTACT: PAUL BLANCHARD
ADDRESS: 5550 EUBANK N.E SUITE B-62 PHONE: 275-2000
CITY, STATE: ALBUQ NM. 87111 ZIP CODE: 87111

ARCHITECT: GAELEN BRYAN Architect. CONTACT: Rob Rayner
ADDRESS: 2403 SAN MATEO BLVD NE PHONE: 884-9694
CITY, STATE: Suite Q-1 ALBUQ. NM ZIP CODE: 87110

SURVEYOR: HARRIS SURVEYING INC. CONTACT: TONY HARRIS
ADDRESS: 2412 MONROE St. NE PHONE: 889-8056
CITY, STATE: ALBUQ. NM. ZIP CODE: 87110

CONTRACTOR: BLANCHARD CONST. CO. CONTACT: WENDELL HALL
ADDRESS: 5859 EUBANK BLVD NE. SUITE B62 PHONE: 803-7169
CITY, STATE: ALBUQ. NM ZIP CODE: 87111

TYPE OF SUBMITTAL:
_____ DRAINAGE REPORT
_____ DRAINAGE PLAN 1st SUBMITTAL
_____ DRAINAGE PLAN RESUBMITTAL
_____ CONCEPTUAL G & D PLAN
_____ GRADING PLAN
_____ EROSION CONTROL PLAN
_____ ENGINEER'S CERT (HYDROLOGY)
_____ CLOMR/LOMR
_____ TRAFFIC CIRCULATION LAYOUT
_____ ENGINEER/ARCHITECT CERT (TCL)
_____ ENGINEER/ARCHITECT CERT (DRB S.P.)
_____ ENGINEER/ARCHITECT CERT (AA)
_____ OTHER (SPECIFY)

CHECK TYPE OF APPROVAL SOUGHT:
_____ SIA/FINANCIAL GUARANTEE RELEASE
_____ PRELIMINARY PLAT APPROVAL
_____ S. DEV. PLAN FOR SUB'D APPROVAL
_____ S. DEV. FOR BLDG. PERMIT APPROVAL
_____ SECTOR PLAN APPROVAL
_____ FINAL PLAT APPROVAL
_____ FOUNDATION PERMIT APPROVAL
_____ BUILDING PERMIT APPROVAL
_____ CERTIFICATE OF OCCUPANCY (PERM)
_____ CERTIFICATE OF OCCUPANCY (TEMP)
_____ GRADING PERMIT APPROVAL
_____ PAVING PERMIT APPROVAL
_____ WORK ORDER APPROVAL
_____ OTHER (SPECIFY)

WAS A PRE-DESIGN CONFERENCE ATTENDED:
_____ YES
_____ NO
_____ COPY PROVIDED

RECEIVED
DEC 24 2007
HYDROLOGY SECTION

SUBMITTED BY: _____ DATE: _____

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage submittal. The particular nature, location and scope to the proposed development define the degree of drainage detail. One or more of the following levels of submittal may be required based on the following:

1. **Conceptual Grading and Drainage Plan:** Required for approval of Site Development Plans greater than five (5) acres and Sector Plans.

2. **Drainage Plans:** Required for building permits, grading permits, paving permits and site plans less than five (5) acres.

3. ***Drainage Report:*** *Required for subdivision containing more than ten (10) lots or constituting five (5) acres or more.*

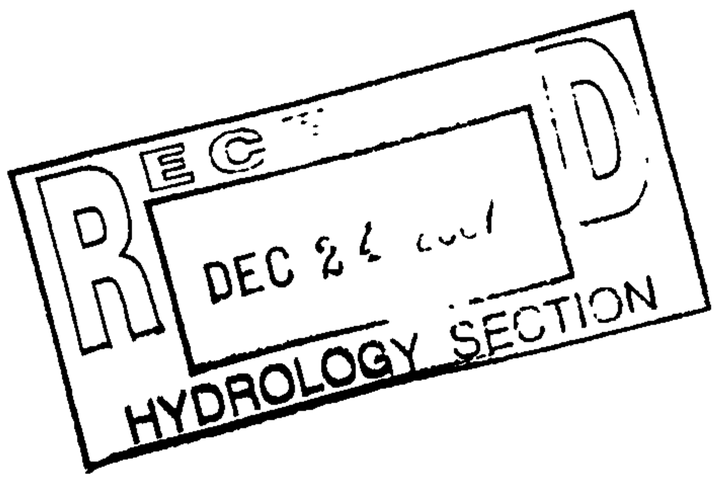
PROJECT: Defined Fitness, 33301 Juan Tabo

ALBUQUERQUE, NM (1/93) CRITERIA - D.P.M. SIMPLE PROCEDURE FOR <= 40 ACRES (ASSUMES Tc=0.2hr =12min)
BASIC TREATMENT CLASSES: A=UNDISTURBED, B=LAWNS, C=UNPAVED ROADS or STEEP B, D=ROOFS,PAVEMENT: SEE DPM 22.2 P A-5
PX100-6 = PRECIPITATION EXCESS FROM 100-YEAR 6-HOUR STORM; PX10-6 =SAME FOR 10-YEAR STORM
VOL10D = VOLUME OF RUNOFF FROM 10-DAY STORM; APPROXIMATE "6-HR" HYDRGRAPH PER DPM 22.2 SECTION A.8
City of Albuquerque approximation for Santa Fe

Landscape area north of inside swimming pool

Basic Area; Steep xeric LS on filter fabric as "B"

Storm,yr 100		Zone 4			Qp6,cfs 0.72			VOL1D,cf 1,312			SF,total 7,271
Rain,	inches	TRTMT CLASS	AREA SQ FT	AREA ACRES	PX100-6 INCHES	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR CU FT	VOL1D CU FT	VOL4D CU FT	VOL10D AC-FT	TRTMT PERCENT
0.2 hr	1.12	A	0.0	0.0000	0.80	2.20	0.000	0	0	0	0	0.00
1 hr	2.23	B	0.0	0.0000	1.08	2.92	0.000	0	0	0	0	0.00
6 hr	2.90	C	4,615.0	0.1059	1.46	3.73	0.395	561	561	561	561	63.47
1 day	3.65	D	2,656.0	0.0610	2.64	5.25	0.320	584	750	983	1,259	36.53
4 day	4.70	TOTAL	7,271.0	0.1669	1.891	4.285	0.715	1,146	1,312	1,544	1,821	100.00
10 day	5.95		SQ MI>	0.0002608	^ Average	per acre ^	AC-FT>	0.0263	0.0301	0.0355	0.0418	<AC-FT
Apx. hydgrograph		Tconc 0.20		T Base 0.84		T Peak 0.24		Peak Lasts 0.09		Hydrograph Qavg, cfs 0.33		



CITY OF ALBUQUERQUE

January 4, 2008

Garlan Bryan, R.A.
2403 San Mateo Blvd. NE W-1
Albuquerque, NM 87110

Re: Sandia Plaza Improvements, 3301 Juan Tabo Blvd NE,
Traffic Circulation Layout
Architect's Stamp dated 12-10-07 (G21-D038)

Dear Mr. Bryan,

The above referenced plan is not approved through the TCL process. Due to the existing zoning, this project is site plan controlled and will need to be submitted through the DRB. If this plan has already been approved through the DRB process, be sure to include it in the plan set when applying for building permit.

If you have any questions, you can contact me at 924-3991.

Sincerely,

Kristal D. Metro, P.E.
Traffic Engineer, Planning Dept.
Development and Building Services

C: File

P.O. Box 1293

Albuquerque

New Mexico 87103

www.cabq.gov

G-21 D038

DRAINAGE AND TRANSPORTATION INFORMATION SHEET
(Rev. 12/05)

PROJECT TITLE: SANDIA PLAZA Improvements ZONE MAP/DRG. FILE # G-21-Z
DRB#: _____ EPC#: 1000074 (Previous) WORK ORDER#: _____

LEGAL DESCRIPTION: TRACT H-3-A LA RANCHO DE LOS ACOS, UNIT 2
CITY ADDRESS: 3301 JUAN TABO N.E.

ENGINEERING FIRM: PER SE ENGINEERING. CONTACT: tucker Green
ADDRESS: 2116 Lead Ave. SE PHONE: 232-9394
CITY, STATE: ALBUQ. NM ZIP CODE: 87106

OWNER: SANDIA PLAZA PARTNERS LLC CONTACT: PAUL BLANCHARD
ADDRESS: 5850 EUBANK N.E Suite B-62 PHONE: 275-0000
CITY, STATE: ALBUQ NM. 87111 ZIP CODE: 87111

ARCHITECT: GALEN BRUNN Architect. CONTACT: Rob Rayner
ADDRESS: 2403 SAN MATEO BLVD NE PHONE: 884-9694
CITY, STATE: Suite D-1 ALBUQ. NM ZIP CODE: 87110

SURVEYOR: HARRIS SURVEYING INC. CONTACT: TONY HARRIS
ADDRESS: 2412 MONROE S.E PHONE: 889-8056
CITY, STATE: ALBUQ. NM. ZIP CODE: 87110

CONTRACTOR: BLANCHARD CONST. CO. CONTACT: WALDELL HALL
ADDRESS: 5859 EUBANK BLVD NE. SL-62 PHONE: 803-7169
CITY, STATE: ALBUQ. NM ZIP CODE: 87111

TYPE OF SUBMITTAL:
- ____ DRAINAGE REPORT
- ____ DRAINAGE PLAN 1st SUBMITTAL
- ____ DRAINAGE PLAN RESUBMITTAL
- ____ CONCEPTUAL G & D PLAN
- ____ GRADING PLAN
- ____ EROSION CONTROL PLAN
- ____ ENGINEER'S CERT (HYDROLOGY)
- ____ CLOMR/LOMR
- X TRAFFIC CIRCULATION LAYOUT
- ____ ENGINEER/ARCHITECT CERT (TCL)
- ____ ENGINEER/ARCHITECT CERT (DRB S.P.)
- ____ ENGINEER/ARCHITECT CERT (AA)
- ____ OTHER (SPECIFY)

CHECK TYPE OF APPROVAL SOUGHT:
- ____ SIA/FINANCIAL GUARANTEE RELEASE
- ____ PRELIMINARY PLAT APPROVAL
- ____ S. DEV. PLAN FOR SUB'D APPROVAL
- ____ S. DEV. FOR BLDG. PERMIT APPROVAL
- ____ SECTOR PLAN APPROVAL
- ____ FINAL PLAT APPROVAL
- ____ FOUNDATION PERMIT APPROVAL
- X BUILDING PERMIT APPROVAL
- ____ CERTIFICATE OF OCCUPANCY (PERM)
- ____ CERTIFICATE OF OCCUPANCY (TEMP)
- ____ GRADING PERMIT APPROVAL
- ____ PAVING PERMIT APPROVAL
- ____ WORK ORDER APPROVAL
- ____ OTHER (SPECIFY)

RECEIVED
DEC 10 2007
HYDROLOGY SECTION

WAS A PRE-DESIGN CONFERENCE ATTENDED:
- ____ YES
- X NO
- ____ COPY PROVIDED

SUBMITTED BY: ROBERT RAYNER DATE: 12/10/07

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage submittal. The particular nature, location and scope to the proposed development define the degree of drainage detail. One or more of the following levels of submittal may be required based on the following:

1. **Conceptual Grading and Drainage Plan:** Required for approval of Site Development Plans greater than five (5) acres and Sector Plans.
2. **Drainage Plans:** Required for building permits, grading permits, paving permits and site plans less than five (5) acres.
3. **Drainage Report:** Required for subdivision containing more than ten (10) lots or constituting five (5) acres or more.

NEED A.A.

City of Albuquerque

October 6, 1999

Ronald R. Bohannan, P.E.
Tierra West, LLC
4421 McLeod NE
Suite D
Albuquerque, NM 87109

RE: SANDIA PLAZA SHOPPING CENTER (G21-D38). TIERRA WEST LETTER TO CITY ENGINEER DATED SEPTEMBER 29, 1999 REGARDING JUNE 24, 1999 SUBMITTAL FOR BUILDING AND PAVING PERMITS.

Dear Mr. Bohannan:

Thank you for clarifying whether or not there are any existing drainage easements to discharge stormwater offsite. Evidently, there is no record of any complaints received by and/or problems reported to the City over the past 25 years..

This renovation does not appreciably affect either the pattern or the quantity of runoff. The main buildings were gutted for remodling and two new buildings added in former parking areas.

***The G&D Plan stamped May 14,1999 is approved for subject permits. No additional off-site property rights are required.

If I can be of further assistance, please feel free to contact me at 924-3984.

Sincerely,

John P. Murray, P.E,
Hydrology

c: WR
√ File

Tierra West, LLC

10/5/99 2:30
FSA
NO Addl'l off-Site Prop. Rights, Req'd

September 29, 1999

Mr. Fred Aguirre
City Engineer
City of Albuquerque
P.O. Box 1293
Albuquerque, NM 87103

Re: Sandia Plaza

Dear Mr. Aguirre:

We are working on a project called Sandia Plaza located on Juan Tabo Boulevard between Candelaria and Jane Place (G21/D38). We are going through the DRC process and Hydrology has requested additional information on the grading plan and drainage report. They want to know if the site has drainage easements to discharge the water offsite. In checking all the plats, there are no documented drainage easements for this site. The project has been in existence since the early 1970's, and there is no record of a drainage report or site plan for the site. We have examined the site topography and documented the historical drainage patterns. However, since the site has been in existence for greater than ten years we feel the City has proscriptive drainage easements. We are in the process of doing a replat for this property. Please advise us on how to proceed.

If you have any questions or need additional information, please contact me or Sara Lavy.

Sincerely,

Ronald R. Bohannan, P.E.

cc: Paul Blanchard

JN: 980004
scl

980004: 9804-aguirre-easement.ltr

4421 McLeod Rd. NE, Suite D • Albuquerque, NM 87109 • (505) 883-7592
fax (505) 883-7034 • e-mail: twdms@aol

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

April 20, 2000

Ronald R. Bohannan, P.E.
Tierra West, LLC
4421 McLeod NE
Suite D
Albuquerque, NM 87109

RE: SANDIA PLAZA SHOPPING CENTER (G21-D38). GRADING AND DRAINAGE PLAN FOR SITE DEVELOPMENT PLAN FOR SUBDIVISION AND BUILDING PERMIT APPROVALS, AND FOR BUILDING AND PAVING PERMIT APPROVALS. ENGINEER'S STAMP DATED MARCH 3, 2000.

Dear Mr. Bohannan:

Based on the information provided on your April 6, 2000 submittal, the above referenced project is approved for Site Development Plan for Subdivision, Site Development Plan for Building Permit, Building Permit, and Paving Permit.

Please attach a copy of this approved plan to the construction sets prior to sign-off by Hydrology.

Prior to Certificate of Occupancy approval, an Engineer's Certification per the DPM will be required.

If I can be of further assistance, please feel free to contact me at 924-3984.

Sincerely,

John P. Murray, P.E.
Hydrology

c: Whitney Reierson
File

DRAINAGE INFORMATION SHEET

PROJECT TITLE: *Sandia Plaza Shopping Center* **ZONE ATLAS/DRNG. FILE #:** *G-21/D38*

DRB #: _____ **EPC #:** _____ **WORK ORDER #:** _____

LEGAL DESCRIPTION: *Tract H3A of La Reina de los Altos Unit 2*

CITY ADDRESS: *North of Candelaria and west of Juan Tabo Boulevard*

ENGINEERING FIRM: *TIERRA WEST, LLC* **CONTACT:** *RONALD R. BOHANNAN*

ADDRESS: *8509 Jefferson NE, Alb, NM 87113* **PHONE:** *(505) 858-3100*

OWNER: _____ **CONTACT:** _____

ADDRESS: _____ **PHONE:** _____

ARCHITECT: _____ **CONTACT:** _____

ADDRESS: _____ **PHONE:** _____

SURVEYOR: *Precision Surveys* **CONTACT:** *Larry Medrano*

ADDRESS: *2929 Coors Blvd NW Suite 309* **PHONE:** *(505)839-0569*

CONTRACTOR: _____ **CONTACT:** _____

ADDRESS: _____ **PHONE:** _____

TYPE OF SUBMITTAL:

_____ DRAINAGE REPORT

_____ DRAINAGE PLAN

_____ CONCEPTUAL GRADING & DRAINAGE PLAN

X GRADING PLAN

_____ EROSION CONTROL PLAN

_____ ENGINEER'S CERTIFICATION

_____ OTHER

PRE-DESIGN MEETING:

_____ YES

X NO

_____ COPY PROVIDED

CHECK TYPE OF APPROVAL SOUGHT:

_____ SKETCH PLAN APPROVAL

_____ PRELIMINARY PLAT APPROVAL

X S. DEV. PLAN FOR SUB'D. APPROVAL

X S. DEV. PLAN FOR BLDG. PERMIT APPROVAL

_____ SECTOR PLAN APPROVAL

_____ FINAL PLAT APPROVAL

_____ FOUNDATION PERMIT APPROVAL

X BUILDING PERMIT APPROVAL

_____ CERTIFICATE OF OCCUPANCY APPROVAL

GRADING PERMIT APPROVAL

X PAVING PERMIT APPROVAL

_____ S. A. D. DRAINAGE REPORT

_____ DRAINAGE REQUIREMENTS

_____ *OTHER*

RECEIVED
APR 0 6 2000
HYDROLOGY SECTION

DATE SUBMITTED: *04/05/00*

BY: *Sara Lavy*

TIERRA WEST, LLC

8509 Jefferson NE
Albuquerque, NM 87113

(505) 858-3100
fax (505) 858-1118

e-mail: twdms@aol.com
1-800-245-3102

April 5, 2000

Mr. John P. Murray
Hydrology Department
City of Albuquerque
P.O. Box 1293
Albuquerque, NM 87103

Re: Sandia Plaza Shopping Center (G21-D38)

Dear Mr. Murray:

We are resubmitting the Grading and Drainage Plan because of minor changes to the site plan. The Grading Plan was previously approved on May 14, 1999. EPC requested the changes and they do not affect any of the grades or the drainage patterns. The changes consist of added pedestrian connections and landscaping.

If you have any questions regarding this matter, please do not hesitate to call me.

Sincerely,

Sara Lavy

Sara Lavy

cc: Paul Blanchard

JN: 980004
scl

980004: 9804-hyd-resubmittal 4-5-00.ltr

CITY OF
Albuquerque

March 3, 1998

Ronald R. Bohannan, P.E.
Tierra West, LLC
4421 McLeod NE
Suite D
Albuquerque, NM 87109

RE: SANDIA PLAZA SHOPPING CENTER (G21-D38). DRAINAGE REPORT FOR SITE DEVELOPMENT PLAN FOR BUILDING PERMIT, BUILDING PERMIT, AND GRADING PERMIT APPROVALS. ENGINEER'S STAMP DATED JANUARY 29, 1998.

Dear Mr. Bohannan:

Based on the information provided on your February 9, 1998 submittal, the above referenced project is approved for Site Development for Building Permit and Grading Permit.

Prior to Building Permit approval, please address the following comments:

1. Is there a retention pond in Basin 2? Your report seems to indicate that retention is taking place. Per the City Drainage Ordinance, retention is not allowed.

2. Provide finish floor elevations for the existing buildings in the shopping center.

If I can be of further assistance, please feel free to contact me at 924-3984.

Sincerely,

Lisa Ann Manwill, P.E.
Hydrology

c: Andrew Garcia
File

DRAINAGE INFORMATION SHEET

PROJECT TITLE: *Sandia Plaza Shopping Center* **ZONE ATLAS/DRNG. FILE #:** *G-21* 38

DRB #: _____ **EPC #:** _____ **WORK ORDER #:** _____

LEGAL DESCRIPTION: *Tract H3A of La Reina de los Altos Unit 2*

CITY ADDRESS: *North of Candelaria and west of Juan Tabo Boulevard*

ENGINEERING FIRM:	*TIERRA WEST, LLC*	**CONTACT:**	*RONALD R. BOHANNAN*
ADDRESS:	*4421 McCleod Rd. NE Suite D, 87109*	**PHONE:**	*(505) 883-7592*
OWNER:		**CONTACT:**	
ADDRESS:		**PHONE:**	
ARCHITECT:	*de la Torre Architects*	**CONTACT:**	*Jorge de la Torre*
ADDRESS:	*7801 Academy NE Building 2 Suite 200*	**PHONE:**	*(505)828-9611*
SURVEYOR:	*Precision Surveys*	**CONTACT:**	*Larry Medrano*
ADDRESS:	*2929 Coors Blvd NW Suite 309*	**PHONE:**	*(505)839-0569*
CONTRACTOR:		**CONTACT:**	
ADDRESS:		**PHONE:**	

TYPE OF SUBMITTAL:

- ___X___ DRAINAGE REPORT
- _____ DRAINAGE PLAN
- _____ CONCEPTUAL GRADING & DRAINAGE PLAN
- ___X___ GRADING PLAN
- _____ EROSION CONTROL PLAN
- _____ ENGINEER'S CERTIFICATION
- _____ OTHER

PRE-DESIGN MEETING:

- _____ YES
- ___X___ NO
- _____ COPY PROVIDED

CHECK TYPE OF APPROVAL SOUGHT:

- _____ SKETCH PLAN APPROVAL
- _____ PRELIMINARY PLAT APPROVAL
- _____ S. DEV. PLAN FOR SUB'D. APPROVAL
- ___X___ S. DEV. PLAN FOR BLDG. PERMIT APPROVAL
- _____ SECTOR PLAN APPROVAL
- _____ FINAL PLAT APPROVAL
- _____ FOUNDATION PERMIT APPROVAL
- ___X___ BUILDING PERMIT APPROVAL
- _____ CERTIFICATE OF OCCUPANCY APPROVAL
- ___X___ GRADING PERMIT APPROVAL
- _____ PAVING PERMIT APPROVAL
- _____ S. A. D. DRAINAGE REPORT
- _____ DRAINAGE REQUIREMENTS
- _____ *OTHER*

DATE SUBMITTED: *02/09/98*

BY: *Sara McCollam*

RECEIVED
FEB 0 9 1998
HYDROLOGY SECTION

DRAINAGE REPORT

for

Sandia Plaza Shopping Center

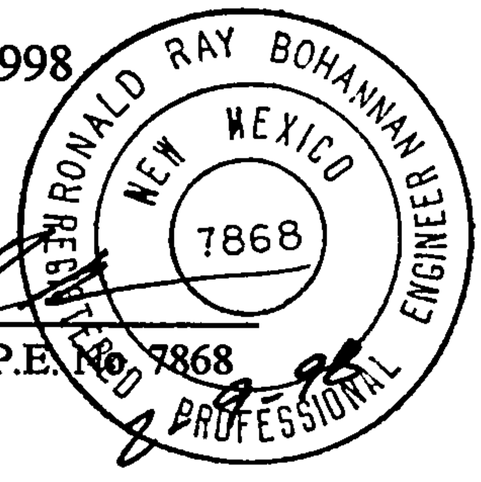
Prepared by

Tierra West, LLC
4421 McLeod Road NE, Suite D
Albuquerque, New Mexico 87109

Prepared for

de la Torre Architects
7801 Academy Rd NE Building 2 Suite 200
Albuquerque, New Mexico 87109

February 1998



Ronald R. Bohannan P.E. No. 7868

TABLE OF CONTENTS

GRAPHIC SCALE IN FEET

250 0 500 1000

CITY OF Albuquerque

Albuquerque Geographic Information System

PLANNING DEPARTMENT

Map Amended through February 16, 1997

LEGAL DESCRIPTION

TION

R4E

SEC 4

UNIFORM PROPERTY CODE

1-021-060

G-21-Z

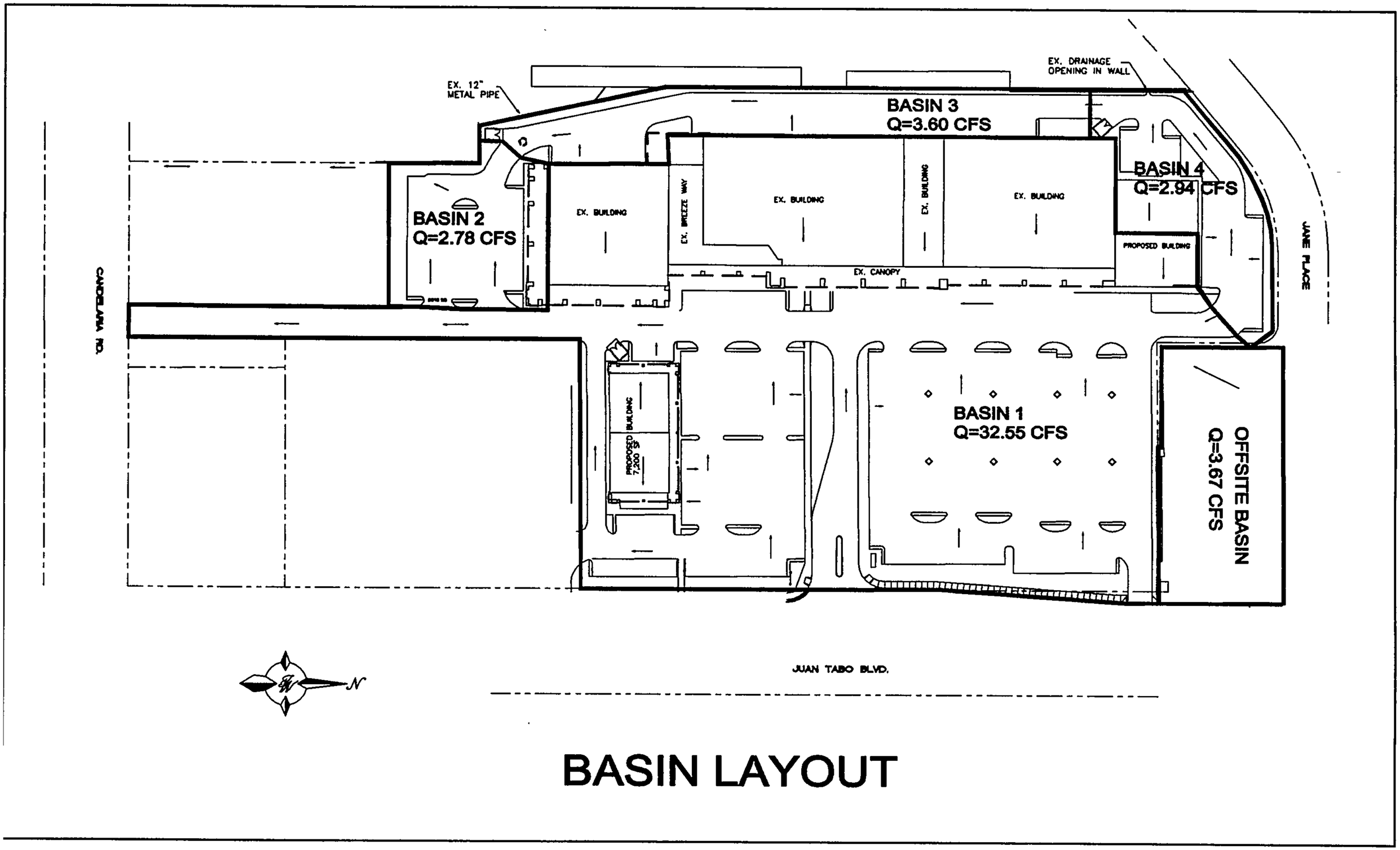
Location

Sandia Plaza Shopping Center is an existing site that is located on Juan Tabo Boulevard near Candelaria Road. The site is shown on the attached Zone Atlas Map G-21 and contains approximately 8.36 acres. The site legal description is Tract H3A of La Reina de los Altos Unit 2.

The site has been developed for a number of years, and currently there is a pawn shop, a hairdresser, a restaurant and a vacant building on the site. The current owner is preparing to update the shopping center by adding additional parking spaces and landscaping improvements in the parking lot. Other proposed improvements include added a 8,700 square foot proposed building on the north side of the shopping center and a new 7,200 square foot pad site on the southeast side of the site. Parking lot islands, tree planters, and an entrance driveway are also proposed improvements for the site. The purpose of this report is to provide the drainage analysis and management plan for the shopping center.

Existing Drainage Conditions

The site has been developed continuously prior to 1972 and the existing conditions closely represent the developed conditions. Currently the site has four on-site basins. Basin 1 has a developed discharge rate of 32.55 cfs and free discharges to Candelaria Road. This is the largest basin and consists of the main portion of the site. A driveway to Candelaria acts as a drainage channel and has a capacity of 187.30 cfs. This is more than adequate for Basin 1 and the offsite basin. Basin 2, on the south side of the site, has a developed discharge rate of 2.78 cfs. This basin free discharges to a pond located on the south side of the site. The pond overflows the south curb and enters the adjacent lot. The adjoining lot provides a corridor for the flows behind the building, filled with large gravel for the flows to reach Candelaria Road. The flows enter a concrete rundown and are conveyed by existing sidewalk



BASIN LAYOUT

culverts to Candelaria Road. Basin 3 has a developed discharge rate of 3.60 cfs. This basin is located in the back of the existing buildings and free discharges to a 12" exposed metal pipe which runs south towards Candelaria Road. The developed runoff rate of 3.60 cfs is less than the pipe capacity of 4.57 cfs. The pipe daylights into an existing concrete rundown and sidewalk culverts convey the flows to Candelaria Road. Basin 4 is on the north side of the site with a developed discharge rate 2.94 cfs. This basin free discharges to a 2' curb cut in the back of the buildings and then into the public street of Jane Place.

There is an offsite drainage basin located to the north of the site, consisting of a Yamaha Dealership which free discharges 3.67 cfs to the site. This flow joins the flows from Basin 1 and discharges to Candelaria Road. There is an existing retaining wall on the west side of the site that prevents off-site drainage from entering the site. There is a water block on Juan Tabo to the east and existing developed sites on the south that keep any offsite drainage from entering the site from those directions. There is no offsite drainage entering the site from the any other direction.

The driveway to Candelaria Road will act as an emergency overflow in the event of a storm larger than a 100 year storm.

FIRM Map and Soil Conditions

The site is located on FIRM Map 35001C0357 D as shown on the attached excerpt. The map shows that the site does not lie within any 100 year flood plains.

According to the Soil Conservation Service Soil Survey of Bernalillo County, the site contains one soil type. The site consists of an Embudo-Tijeras complex which has a medium runoff and a moderate hazard of water erosion.

COMANCHE ROAD
CAMINO CAPISTRANO
CAMINO SAC
BOULEVARD
MADRID
MONACO
NAPLES ST
98 004

ZONE X
APPIANWAY
PLACE
AVENUE
BRUSSELS COURT
ALASKA
TABO
BRUSSELS

STREET
DRIVE
MOONLIGHT COURT
MOON VALLEY COURT
100-YEAR FLOOD CONFINED TO CONSTRUCTED CHANNEL
ZONE A
MOONBEAM COURT
Glenwood
JUAN
North
BAR HARBOR PLACE
GATE
GOLDEN
VERSAILLE
TAHITI PL
ATLANTIC
RIVIERA
PALM
HUGHES
MORENC

ZONE X
MORRIS STREET
REINA PLACE
COURT
DRIVE
JUNE
JUDY
CANDLELIGHT
BRIARWOOD TERRACE
PLACE
SITE
CITY OF ALBUQUERQUE
350002
ZONE X

4

ZONE AO
(DEPTH 1)
STREET
JANE
LOS ARBOLES ROAD
JANE COURT
SHIRLEY STREET
STREET
BOULEVARD
RM45
TABO
LOS ARBOLES AVENUE
AVENUE
STREET
TAHITI
LEXINGTON COURT
LEXINGTON
MURIEL
JUAN
CLAREMONT ROAD
FAIRBANKS AVENUE
CORDOVA COURT
PHOENIX AVENUE
PHOENIX
Channel
LIMIT OF DETAILED STUDY
GRETTA STREET
JUNE
DRIVE
CANDLELIGHT
GRETTA STREET
AVENUE
STREET
STREET
STREET

FIRM MAP 35001C0357 D

Proposed On-Site Drainage Management Plan

The proposed drainage management plan is to continue the existing drainage patterns. The site was developed prior to 1972 before the City of Albuquerque kept complete drainage records. Consequently, there is no drainage report on file for this site although it is already developed. The proposed improvements to the site will not change the existing drainage conditions. The site was previously impervious and the new improvements will not change the land condition. The current drainage solution performs adequately and there have been no complaints from the tenants on the site or the adjacent property owners.

Runoff Calculations

RUNOFF CALCULATIONS

The site is @ Zone 4

LAND TREATMENT

Existing
B = 10%
D = 90%

DEPTH (INCHES) @ 100-YEAR STORM

P_{60} = 2.23 inches

P_{360} = 2.90 inches

P_{1440} = 3.65 inches

DEPTH (INCHES) @ 10-YEAR STORM

P_{60} = 2.23 x 0.667
= 1.49 inches

P_{360} = 1.93

P_{1440} = 2.43

See the summary output from AHYMO calculations.

Drainage Basins

BASIN	AREA (SF)	AREA (AC)	AREA (MI^2)
1	281239.30	6.4564	0.010088
2	23863.75	0.5478	0.000856
3	30960.45	0.7108	0.001111
4	25224.83	0.5791	0.000905
5	31553.95	0.7244	0.001132
Total	392842.28	9.0184	0.014091

Runoff Calculation Results

BASIN	Q-100 CFS	Q-10 CFS	V-100 AC-FT	V-10 AC-FT
1	32.55	21.32	1.337	0.837
2	2.78	1.82	0.133	0.071
3	3.60	2.36	0.147	0.092
4	2.94	1.92	0.120	0.075
5	3.67	2.40	0.150	0.094
Total	45.54	29.82	1.887	1.169

Drainage Facilities Analysis

Curb Cut

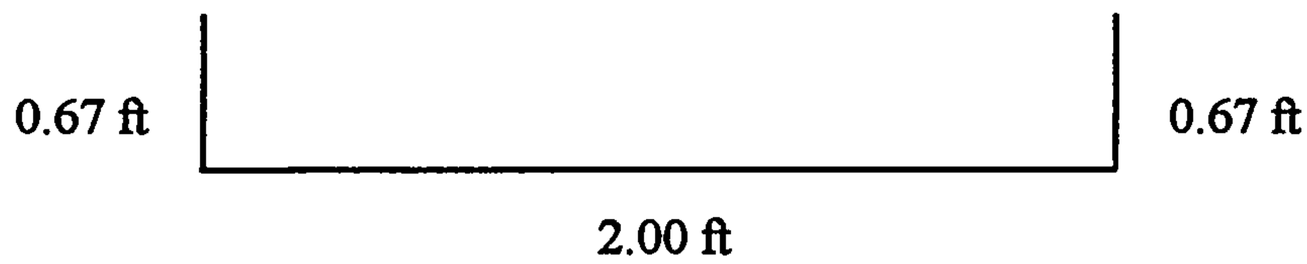
Weir Equation:

$$Q=CLH^{3/2}$$

Basin 4:
Q= Flow (cfs)
C = 2.95
H = 0.67 ft
L = 2.0 ft

$$Q=2.95*2.0*0.67^{3/2}$$

Q = 3.24 cfs
3.24 cfs > 3.13 cfs



Street Channel

Manning's Equation:

$$Q = \frac{1.49}{n} A R^{2/3} S^{1/2}$$

Q = Flow (cfs)
n = 0.017
A = Area
R = Hydraulic Radius
S = Slope

$$A = 0.37 * 32 * 0.5 + 32 * 0.5 = 21.92$$

$$WP = 2 * 0.5 + 2 * \sqrt{0.37^2 + 16^2} = 33.0$$

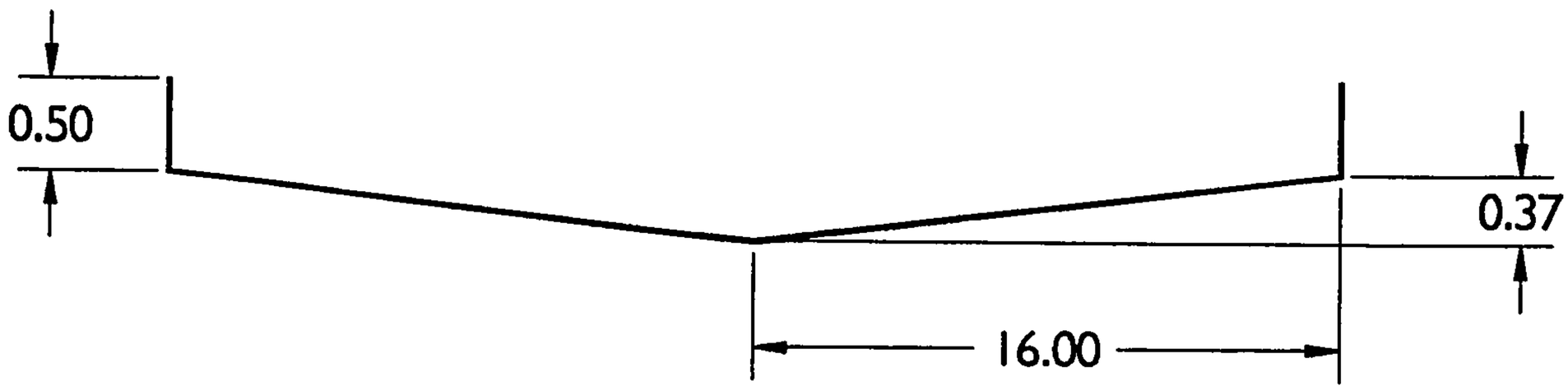
$$R = \frac{A}{WP} = \frac{21.92}{33.00} = 0.6642$$

Manning's Equation:

$$Q = \frac{1.49}{0.017} * 21.92 * 0.6642^{2/3} * 0.0164^{1/2}$$

$$Q = 187.30 \ cfs$$

Capacity of street = 187.30 cfs
Required capacity of street = 32.33 cfs
187.30 cfs > 32.33 cfs



Pipe Capacity

Manning's Equation:

Q = 1.49/n * A * R^(2/3) * S^(1/2)

A = Area
R = D/4
S = Slope
n = 0.013

Pipe	D	Slope	Area	R	Q Provided	Q Required	Velocity
	(in)	(%)	(ft^2)		(cfs)	(cfs)	(ft/s)
Metal Pipe	12	1.64	0.79	0.25	4.57	7.65	9.74

AHYMO
Runoff Input
and
Summary Output
for
Existing Drainage Basins

```
**********************************************************************
*                  SANDIA PLAZA SHOPPING CENTER                      *
**********************************************************************
*       100-YEAR, 6-HR STORM  (UNDER DEVELOPED CONDITIONS)           *
**********************************************************************
*
START                TIME=0.0
*
* BASIN 1
*
RAINFALL             TYPE=1 RAIN QUARTER=0.0 IN
                     RAIN ONE=2.23 IN RAIN SIX=2.90 IN
                     RAIN DAY=3.65 IN DT=0.02253 HR
COMPUTE NM HYD       ID=1 HYD NO=100.1 AREA=0.010088 SQ MI
                     PER A=0.00 PER B=10.00 PER C=0.00 PER D=90.00
                     TP=-0.1333 HR MASS RAINFALL=-1
PRINT HYD            ID=1 CODE=1
*
* BASIN 2
*
COMPUTE NM HYD       ID=1 HYD NO=100.2 AREA=0.000856 SQ MI
                     PER A=0.00 PER B=10.00 PER C=0.00 PER D=90.00
                     TP=-0.1333 HR MASS RAINFALL=-1
PRINT HYD            ID=1 CODE=1
*
*
* BASIN 3
*
COMPUTE NM HYD       ID=1 HYD NO=100.3 AREA=0.001111 SQ MI
                     PER A=0.00 PER B=10.00 PER C=0.00 PER D=90.00
                     TP=-0.1333 HR MASS RAINFALL=-1
PRINT HYD            ID=1 CODE=1
*
* BASIN 4
*
COMPUTE NM HYD       ID=1 HYD NO=100.4 AREA=0.000905 SQ MI
                     PER A=0.00 PER B=10.00 PER C=0.00 PER D=90.00
                     TP=-0.1333 HR MASS RAINFALL=-1
PRINT HYD            ID=1 CODE=1
*
* BASIN 5
*
COMPUTE NM HYD       ID=1 HYD NO=100.5 AREA=0.001132 SQ MI
                     PER A=0.00 PER B=10.00 PER C=0.00 PER D=90.00
                     TP=-0.1333 HR MASS RAINFALL=-1
PRINT HYD            ID=1 CODE=1
*
*
**********************************************************************
*       10-YEAR, 6-HR STORM  (UNDER DEVELOPED CONDITIONS)            *
**********************************************************************
*
START                TIME=0.0
*
* BASIN 1
*
RAINFALL             TYPE=1 RAIN QUARTER=0.0 IN
                     RAIN ONE=1.49 IN RAIN SIX=1.93 IN
                     RAIN DAY=2.43 IN DT=0.02253 HR
COMPUTE NM HYD       ID=1 HYD NO=110.1 AREA=0.010088 SQ MI
```

```
                    PER A=0.00 PER B=10.00 PER C=0.00 PER D=90.00
                    TP=-0.1333 HR MASS RAINFALL=-1
PRINT HYD           ID=1 CODE=1
*
* BASIN 2
*
COMPUTE NM HYD      ID=1 HYD NO=110.2 AREA=0.000856 SQ MI
                    PER A=0.00 PER B=10.00 PER C=0.00 PER D=90.00
                    TP=-0.1333 HR MASS RAINFALL=-1
PRINT HYD           ID=1 CODE=1
*
* BASIN 3
*
COMPUTE NM HYD      ID=1 HYD NO=110.3 AREA=0.001111 SQ MI
                    PER A=0.00 PER B=10.00 PER C=0.00 PER D=90.00
                    TP=-0.1333 HR MASS RAINFALL=-1
PRINT HYD           ID=1 CODE=1
*
* BASIN 4
*
COMPUTE NM HYD      ID=1 HYD NO=110.4 AREA=0.000905 SQ MI
                    PER A=0.00 PER B=10.00 PER C=0.00 PER D=90.00
                    TP=-0.1333 HR MASS RAINFALL=-1
PRINT HYD           ID=1 CODE=1
*
* BASIN 5
*
COMPUTE NM HYD      ID=1 HYD NO=110.5 AREA=0.001132 SQ MI
                    PER A=0.00 PER B=10.00 PER C=0.00 PER D=90.00
                    TP=-0.1333 HR MASS RAINFALL=-1
PRINT HYD           ID=1 CODE=1
*
*
FINISH
```

AHYMO SUMMARY TABLE (AHYMO194) - AMAFCA Hydrologic Model - January, 1994 RUN DATE (MON/DAY/YR) =02/06/1998

INPUT FILE = a:p.dat USER NO.= R_BOHANN.I01

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION	
START										TIME=	.00
RAINFALL TYPE= 1										RAIN6=	2.900
COMPUTE NM HYD	100.10	-	1	.01009	32.55	1.337	2.48449	1.510	5.042	PER IMP=	90.00
COMPUTE NM HYD	100.20	-	1	.00086	2.78	.113	2.48449	1.510	5.080	PER IMP=	90.00
COMPUTE NM HYD	100.30	-	1	.00111	3.60	.147	2.48449	1.510	5.069	PER IMP=	90.00
COMPUTE NM HYD	100.40	-	1	.00091	2.94	.120	2.48449	1.510	5.077	PER IMP=	90.00
COMPUTE NM HYD	100.50	-	1	.00113	3.67	.150	2.48449	1.510	5.069	PER IMP=	90.00
START										TIME=	.00
RAINFALL TYPE= 1										RAIN6=	1.930
COMPUTE NM HYD	110.10	-	1	.01009	21.32	.837	1.55636	1.510	3.303	PER IMP=	90.00
COMPUTE NM HYD	110.20	-	1	.00086	1.82	.071	1.55636	1.510	3.325	PER IMP=	90.00
COMPUTE NM HYD	110.30	-	1	.00111	2.36	.092	1.55636	1.510	3.319	PER IMP=	90.00
COMPUTE NM HYD	110.40	-	1	.00091	1.92	.075	1.55636	1.510	3.323	PER IMP=	90.00
COMPUTE NM HYD	110.50	-	1	.00113	2.40	.094	1.55636	1.510	3.319	PER IMP=	90.00
FINISH											

CITY OF
Albuquerque

May 18,1998

Ronald R. Bohannan
Tierra West ,LCC
4421 McLeod NE Suite D
Albuquerque, New Mexico 87109

RE: REVISED DRAINAGE PLAN FOR SANDIA PLAZA SHOPPING CENTER (G21-D38)
REVISION DATED 4/20/98

Dear Mr. Bohannan:

Based on the information provided on your April 21,1998 resubmittal, the above referenced site is approved for Building Permit.

Please attach a copy of this approved plan to the construction sets prior to sign-off by Hydrology.

Also, prior to Certificate of Occupancy release, Engineer Certification per the DPM will be required.

If I can be of further assistance, please feel free to contact me at 924-3986.

C: Andrew Garcia
File

Sincerely

Bernie J. Montoya CE
Associate Engineer

DRAINAGE INFORMATION SHEET

PROJECT TITLE: *Sandia Plaza Shopping Center* ZONE ATLAS/DRNG. FILE #: *G-21/D38*

DRB #: _____ EPC #: _____ WORK ORDER #: _____

LEGAL DESCRIPTION: *Tract H3A of La Reina de los Altos Unit 2*

CITY ADDRESS: *North of Candelaria and west of Juan Tabo Boulevard*

ENGINEERING FIRM: *TIERRA WEST, LLC* CONTACT: *RONALD R. BOHANNAN*

ADDRESS: *4421 McCleod Rd. NE Suite D, 87109* PHONE: *(505) 883-7592*

OWNER: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

ARCHITECT: *de la Torre Architects* CONTACT: *Jorge de la Torre*

ADDRESS: *7801 Academy Ne Building 2 Suite 200* PHONE: *(505) 828-9611*

SURVEYOR: *Precision Surveys* CONTACT: *Larry Medrano*

ADDRESS: *2929 Coors Blvd NW Suite 309* PHONE: *(505)839-0569*

CONTRACTOR: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

TYPE OF SUBMITTAL:

___X___ DRAINAGE REPORT

_____ DRAINAGE PLAN

_____ CONCEPTUAL GRADING & DRAINAGE PLAN

___X___ GRADING PLAN

_____ EROSION CONTROL PLAN

_____ ENGINEER'S CERTIFICATION

_____ OTHER

PRE-DESIGN MEETING:

_____ YES

___X___ NO

_____ COPY PROVIDED

CHECK TYPE OF APPROVAL SOUGHT:

_____ SKETCH PLAN APPROVAL

_____ PRELIMINARY PLAT APPROVAL

_____ S. DEV. PLAN FOR SUB'D. APPROVAL

_____ S. DEV. PLAN FOR BLDG. PERMIT APPROVAL

_____ SECTOR PLAN APPROVAL

_____ FINAL PLAT APPROVAL

_____ FOUNDATION PERMIT APPROVAL

___X___ BUILDING PERMIT APPROVAL

_____ CERTIFICATE OF OCCUPANCY APPROVAL

_____ GRADING PERMIT APPROVAL

_____ PAVING PERMIT APPROVAL

_____ S. A. D. DRAINAGE REPORT

_____ DRAINAGE REQUIREMENTS

_____ *OTHER*

DATE SUBMITTED: *04/21/98*

BY: *Sara McCollam*

RECEIVED
APR 21 1998
HYDROLOGY SECTION

Tierra West, LLC

April 21, 1998

Mr. Fred Aguirre
City of Albuquerque
P.O. Box 1293
Albuquerque, NM 87103

Re: Sandia Plaza Shopping Center (G21-D38)

Dear Mr. Aguirre:

We are resubmitting the Grading and Drainage Plan for the Sandia Plaza Shopping Center in response to a comment by Lisa Manwill. A 3' curb opening has been added to the southwest corner of Basin 2 to convey the 100 year flow of 2.78 cfs into the landscaped drainage channel. The channel then carries the flow to Candelaria Road. The calculation for the length of weir has been included for your review. No changes have been made to the drainage report.

If you have any questions regarding this matter, please do not hesitate to call me.

Sincerely,

Sara McCollam

Sara McCollam

Enclosures

cc: Jorge de la Torre

JN: 980004
scm

980004: 9804resubmittal2.ltr

4421 McLeod Rd. NE, Suite D • Albuquerque, NM 87109 • (505) 883-7592
fax (505) 883-7034 • e-mail: twdms@aol

Curb Cut

Weir Equation:

$$Q=CLH^{3/2}$$

Basin 2:

Q= Flow = 2.78 cfs

C = 2.95

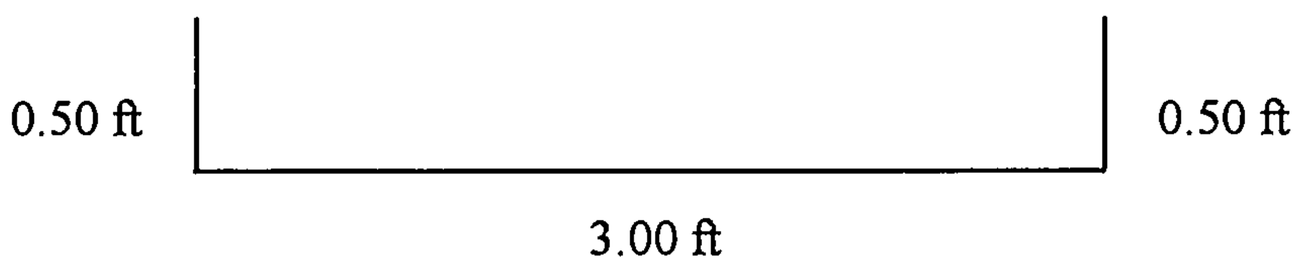
H = Height of Weir = 0.50 ft

L = Length of Weir

$$L=\frac{2.78}{2.95*0.50^{3/2}}$$

L = 2.66 cfs

Use length of 3.0 ft for weir



Tierra West, LLC

June 23, 1999

Mr. Fred Aguirre
City of Albuquerque
P.O. Box 1293
Albuquerque, NM 87103

Re: Sandia Plaza Shopping Center, G-21/D38

Dear Mr. Aguirre:

Enclosed is a revision to the above referenced shopping center. This revision has modified the parking field. The project has an approved grading plan dated April 20, 1998 under G-21/D38 and is located on Juan Tabo Boulevard between Candelaria and Jane Place. The site is the location of an existing building and parking lot that are currently being remodeled. We are resubmitting the grading plan to accommodate changes to the layout. A pad has been added to the north side of the site and grades have been provided for it.

We are not sure if the site will need to be approved by EPC or not. Currently, we are only requesting paving and building permit approval. Should we need to go to EPC, we will submit for the appropriate approval.

If you have any questions regarding this matter, please do not hesitate to call me.

Sincerely,

Sara McCollam

Sara McCollam

cc: Garlan Bryan
Paul Blanchard

JN: 980004
scm

980004: 9804-drainage.ltr

RECEIVED
JUN 24 1999
HYDROLOGY SECTION

4421 McLeod Rd. NE, Suite D • Albuquerque, NM 87109 • (505) 883-7592
fax (505) 883-7034 • e-mail: twdms@aol

DRAINAGE INFORMATION SHEET

PROJECT TITLE: *Sandia Plaza Shopping Center* **ZONE ATLAS/DRNG. FILE #:** *G-21/D38* ✓

DRB #: _____ **EPC #:** _____ **WORK ORDER #:** _____

LEGAL DESCRIPTION: *Tract H3A of La Reina de los Altos Unit 2*

CITY ADDRESS: *North of Candelaria and west of Juan Tabo Boulevard*

ENGINEERING FIRM: *TIERRA WEST, LLC* **CONTACT:** *RONALD R. BOHANNAN*

ADDRESS: *4421 McCleod Rd. NE Suite D, 87109* **PHONE:** *(505) 883-7592*

OWNER: _____ **CONTACT:** _____

ADDRESS: _____ **PHONE:** _____

ARCHITECT: _____ **CONTACT:** _____

ADDRESS: _____ **PHONE:** _____

SURVEYOR: *Precision Surveys* **CONTACT:** *Larry Medrano*

ADDRESS: *2929 Coors Blvd NW Suite 309* **PHONE:** *(505)839-0569*

CONTRACTOR: _____ **CONTACT:** _____

ADDRESS: _____ **PHONE:** _____

TYPE OF SUBMITTAL:

_____ DRAINAGE REPORT

__X__ DRAINAGE PLAN

_____ CONCEPTUAL GRADING & DRAINAGE PLAN

__X__ GRADING PLAN

_____ EROSION CONTROL PLAN

_____ ENGINEER'S CERTIFICATION

_____ OTHER

PRE-DESIGN MEETING:

_____ YES

__X__ NO

_____ COPY PROVIDED

CHECK TYPE OF APPROVAL SOUGHT:

_____ SKETCH PLAN APPROVAL

_____ PRELIMINARY PLAT APPROVAL

_____ S. DEV. PLAN FOR SUB'D. APPROVAL

_____ S. DEV. PLAN FOR BLDG. PERMIT APPROVAL

_____ SECTOR PLAN APPROVAL

_____ FINAL PLAT APPROVAL

_____ FOUNDATION PERMIT APPROVAL

__X__ BUILDING PERMIT APPROVAL

_____ CERTIFICATE OF OCCUPANCY APPROVAL

_____ GRADING PERMIT APPROVAL

__X__ PAVING PERMIT APPROVAL

_____ S. A. D. DRAINAGE REPORT

_____ DRAINAGE REQUIREMENTS

_____ *OTHER*

DATE SUBMITTED: *06/22/99*

BY: *Sara McCollam*

RECEIVED
JUN 24 1999
HYDROLOGY SECTION

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

July 16, 1999

Ronald R. Bohanan, P.E.
Tierra West, LLC
4421 McLeod NE
Suite D
Albuquerque, NM 87109

Attn: Sara McCollam

RE: SANDIA PLAZA SHOPPING CENTER (G21-D38). GRADING AND GRADING PLAN FOR BUILDING PERMIT AND PAVING PERMIT APPROVALS. ENGINEER'S STAMP DATED MAY 14, 1999.

Dear Mr. Bohanan:

Based on the information provided in your June 24, 1999 submittal and the DRC held on July 15, 1999, City Hydrology has the following comments:

On July 13th, the Fire Marshall's Office had informed us of a (minor) fuel spill at this site. Upon a field investigation, Mr. Meinz, PWD Engineering (Hydrology), found some existing conditions which need to be addresssed and corrected. He discussed these at length at the DRC. Foremost among these was the confirming of drainage easements with the neighboring apartment complex and the condition and capacity of the on-site facilities.

Mr. Meinz also provided comments on red lined markups of the plans.

If I can be of further assistance, please feel free to call me at 924-3984.

Sincerely,

John P. Murray, P.E.
Hydrology

c: L. Meinz
File

DRAINAGE INFORMATION SHEET

PROJECT TITLE: *Sandia Plaza Shopping Center* **ZONE ATLAS/DRNG. FILE #:** *G-21/D38*

DRB #: _____ **EPC #:** _____ **WORK ORDER #:** _____

LEGAL DESCRIPTION: *Tract H3A of La Reina de los Altos Unit 2*

CITY ADDRESS: *North of Candelaria and west of Juan Tabo Boulevard*

ENGINEERING FIRM:	*TIERRA WEST, LLC*	**CONTACT:**	*RONALD R. BOHANNAN*
ADDRESS:	*4421 McCleod Rd. NE Suite D, 87109*	**PHONE:**	*(505) 883-7592*
OWNER:		**CONTACT:**	*Don Morgan*
ADDRESS:		**PHONE:**	
ARCHITECT:	*de la Torre Architects*	**CONTACT:**	*Jorge de la Torre*
ADDRESS:	*7801 Academy Ne Building 2 Suite 200*	**PHONE:**	*(505) 828-9611*
SURVEYOR:	*Precision Surveys*	**CONTACT:**	*Larry Medrano*
ADDRESS:	*2929 Coors Blvd NW Suite 309*	**PHONE:**	*(505)839-0569*
CONTRACTOR:		**CONTACT:**	
ADDRESS:		**PHONE:**	

TYPE OF SUBMITTAL:

- ___X___ DRAINAGE REPORT
- _____ DRAINAGE PLAN
- _____ CONCEPTUAL GRADING & DRAINAGE PLAN
- ___X___ GRADING PLAN
- _____ EROSION CONTROL PLAN
- _____ ENGINEER'S CERTIFICATION
- _____ OTHER

PRE-DESIGN MEETING:

- _____ YES
- ___X___ NO
- _____ COPY PROVIDED

This is a "verbal no" my comments from last time was not cleared up - No retention pondins will be allowed.
⇒ Spoke w/ Ron on 3/25/98. He will use a drywell to get rid of the retention pond. To be re-submit.

CHECK TYPE OF APPROVAL SOUGHT:

- _____ SKETCH PLAN APPROVAL
- _____ PRELIMINARY PLAT APPROVAL
- _____ S. DEV. PLAN FOR SUB'D. APPROVAL
- _____ S. DEV. PLAN FOR BLDG. PERMIT APPROVAL
- _____ SECTOR PLAN APPROVAL
- _____ FINAL PLAT APPROVAL
- _____ FOUNDATION PERMIT APPROVAL
- ___X___ BUILDING PERMIT APPROVAL
- _____ CERTIFICATE OF OCCUPANCY APPROVAL
- _____ GRADING PERMIT APPROVAL
- _____ PAVING PERMIT APPROVAL
- _____ S. A. D. DRAINAGE REPORT
- _____ DRAINAGE REQUIREMENTS
- _____ *OTHER*

RECEIVED
MAR 19 1998
HYDROLOGY SECTION

DATE SUBMITTED: *03/13/98*

BY: *Sara McCollam*

DRAINAGE REPORT

for

Sandia Plaza Shopping Center

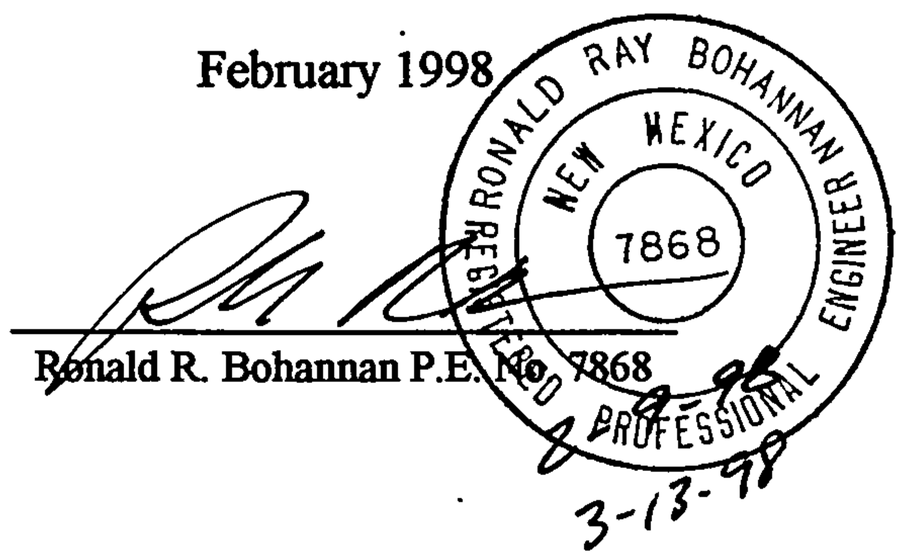
Prepared by

Tierra West, LLC
4421 McLeod Road NE, Suite D
Albuquerque, New Mexico 87109

Prepared for

de la Torre Architects
7801 Academy Rd NE Building 2 Suite 200
Albuquerque, New Mexico 87109

February 1998



Ronald R. Bohannan P.E. No. 7868

Tierra West, LLC

March 13, 1998

Mrs. Lisa Manwill
City of Albuquerque
P.O. Box 1293
Albuquerque, NM 87103

Re: Sandia Plaza Shopping Center (G21-D38)

Dear Mr. Manwill:

This is a letter in response to your comments regarding the drainage report and the Grading and Drainage Plan for the Sandia Plaza Shopping Center.

1. The flows from Basin 2 drain to the southwest corner and pond until it exceeds the 6" curb to drain to a landscaped area that channels the flows to a sidewalk culvert and then to Candelaria Street. If necessary, it would be possible to make a 3' curb cut and regrade the landscape area to allow the water to drain to the channel.

2. Finished floor elevations have been added to the existing buildings in the shopping center.

If you have any questions regarding this matter, please do not hesitate to call me.

Sincerely,

Sara McCollam

Sara McCollam

Enclosures

cc: Jorge de la Torre

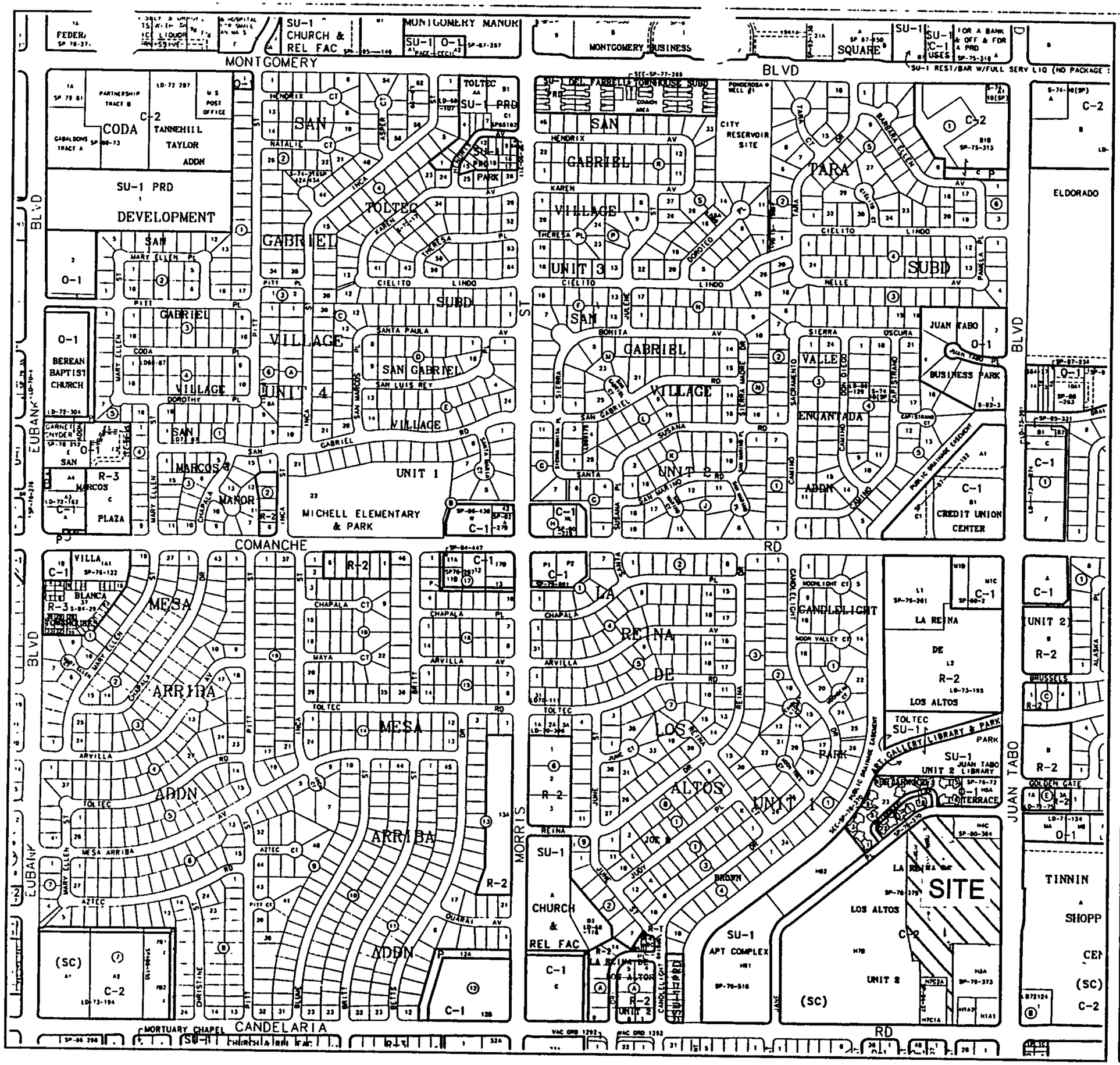
JN: 980004
scm

RECEIVED
MAR 19 1998
HYDROLOGY SECTION

980004: 9804resubmittal.ltr

4421 McLeod Rd. NE, Suite D • Albuquerque, NM 87109 • (505) 883-7592
fax (505) 883-7034 • e-mail: twdms@aol

TABLE OF CONTENTS



GRAPHIC SCALE IN FEET

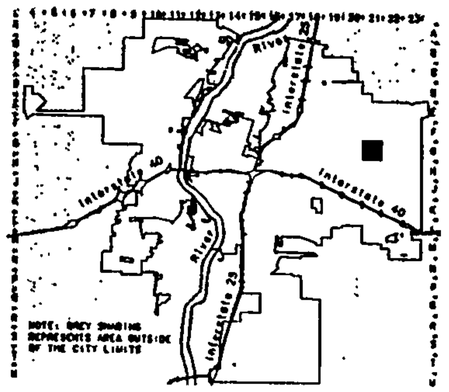
250 0 500 1000

CITY OF Albuquerque

A Albuquerque Geographic Information System

PLANNING DEPARTMENT

Map Amended through February 14, 1997



LEGAL DESCRIPTION

T10N

R4E

SEC 4

UNIFORM PROPERTY CODE

1-021-060

G-21-Z

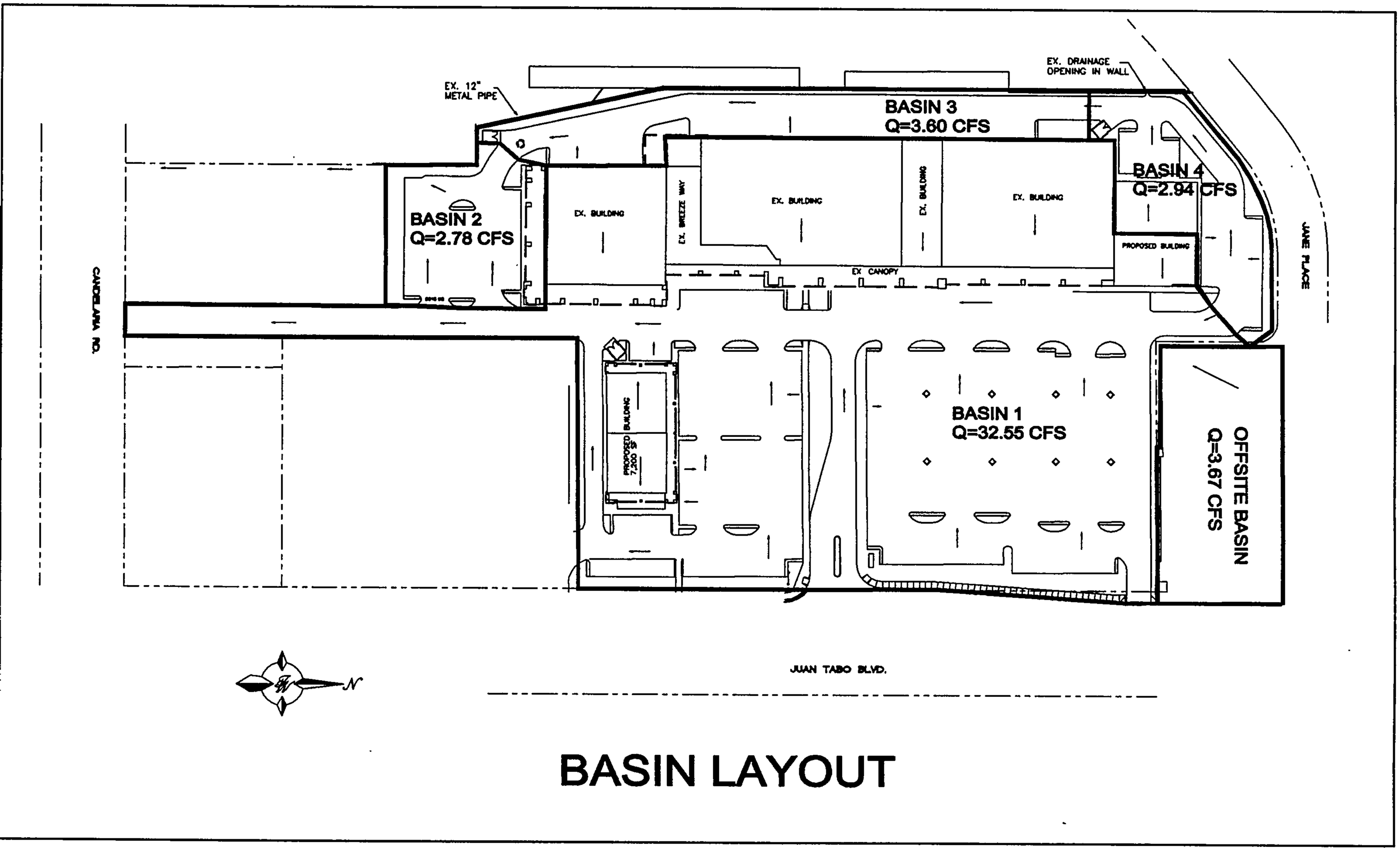
Location

Sandia Plaza Shopping Center is an existing site that is located on Juan Tabo Boulevard near Candelaria Road. The site is shown on the attached Zone Atlas Map G-21 and contains approximately 8.36 acres. The site legal description is Tract H3A of La Reina de los Altos Unit 2.

The site has been developed for a number of years, and currently there is a pawn shop, a hairdresser, a restaurant and a vacant building on the site. The current owner is preparing to update the shopping center by adding additional parking spaces and landscaping improvements in the parking lot. Other proposed improvements include added a 8,700 square foot proposed building on the north side of the shopping center and a new 7,200 square foot pad site on the southeast side of the site. Parking lot islands, tree planters, and an entrance driveway are also proposed improvements for the site. The purpose of this report is to provide the drainage analysis and management plan for the shopping center.

Existing Drainage Conditions

The site has been developed continuously prior to 1972 and the existing conditions closely represent the developed conditions. Currently the site has four on-site basins. Basin 1 has a developed discharge rate of 32.55 cfs and free discharges to Candelaria Road. This is the largest basin and consists of the main portion of the site. A driveway to Candelaria acts as a drainage channel and has a capacity of 187.30 cfs. This is more than adequate for Basin 1 and the offsite basin. Basin 2, on the south side of the site, has a developed discharge rate of 2.78 cfs. This basin free discharges to the south side of the site. The basin drains to the southwest corner and enters the adjacent lot. The adjoining lot provides a corridor for the flows behind the building, filled with large gravel for the flows to reach Candelaria Road. The flows enter a concrete rundown and are conveyed by existing sidewalk culverts to Candelaria



BASIN LAYOUT

Road. Basin 3 has a developed discharge rate of 3.60 cfs. This basin is located in the back of the existing buildings and free discharges to a 12" exposed metal pipe which runs south towards Candelaria Road. The developed runoff rate of 3.60 cfs is less than the pipe capacity of 4.57 cfs. The pipe daylights into an existing concrete rundown and sidewalk culverts convey the flows to Candelaria Road. Basin 4 is on the north side of the site with a developed discharge rate 2.94 cfs. This basin free discharges to a 2' curb cut in the back of the buildings and then into the public street of Jane Place.

There is an offsite drainage basin located to the north of the site, consisting of a Yamaha Dealership which free discharges 3.67 cfs to the site. This flow joins the flows from Basin 1 and discharges to Candelaria Road. There is an existing retaining wall on the west side of the site that prevents off-site drainage from entering the site. There is a water block on Juan Tabo to the east and existing developed sites on the south that keep any offsite drainage from entering the site from those directions. There is no offsite drainage entering the site from the any other direction.

The driveway to Candelaria Road will act as an emergency overflow in the event of a storm larger than a 100 year storm.

FIRM Map and Soil Conditions

The site is located on FIRM Map 35001C0357 D as shown on the attached excerpt. The map shows that the site does not lie within any 100 year flood plains.

According to the Soil Conservation Service Soil Survey of Bernalillo County, the site contains one soil type. The site consists of an Embudo-Tijeras complex which has a medium runoff and a moderate hazard of water erosion.

COMANCHE ROAD
CAMINO CAPISTRANO
BOULEVARD
MADRID
MONACO
NAPLES
TRINIDAD
STREET
DRIVE
MOONLIGHT COURT
MOON VALLEY COURT
MOONBEAM COURT
100-YEAR FLOOD CONFINED TO CONSTRUCTED CHANNEL
ZONE X
ZONE A
ZONE AO (DEPTH 1)
TABO
APPIANWAY
PLACE
ALASKA
BRUSSELS COURT
AVENUE
BRUSSELS
JUAN
Glenwood
North
BAR HARBOR PLACE
GATE
GOLDEN
REINA
PLACE
COURT
JUNE
JUDY
CANDLELIGHT
BRIARWOOD TERRACE
PLACE
SITE
CITY OF ALBUQUERQUE
350002
JANE
RM45
VERSAILLE
TAHITI PLA
ATLANTIC
RIVIERA
PALM
HUGHES
MORENCI
LOS ARBOLES ROAD
JANE COURT
SHIRLEY STREET
LOS ARBOLES AVENUE
GRETTA
CANDLELIGHT
LEXINGTON AVENUE
CLAREMONT ROAD
FAIRBANKS AVENUE
CORDOVA COURT
MURIEL
LEXINGTON COURT
TAHITI
LIMIT OF DETAILED STUDY
PHOENIX AVENUE
Channel

FIRM MAP 35001C0357 D

Proposed On-Site Drainage Management Plan

The proposed drainage management plan is to continue the existing drainage patterns. The site was developed prior to 1972 before the City of Albuquerque kept complete drainage records. Consequently, there is no drainage report on file for this site although it is already developed. The proposed improvements to the site will not change the existing drainage conditions. The site was previously impervious and the new improvements will not change the land condition. The current drainage solution performs adequately and there have been no complaints from the tenants on the site or the adjacent property owners.

Runoff Calculations

RUNOFF CALCULATIONS

The site is @ Zone 4

LAND TREATMENT

Existing
B = 10%
D = 90%

DEPTH (INCHES) @ 100-YEAR STORM

P_{60} = 2.23 inches

P_{360} = 2.90 inches

P_{1440} = 3.65 inches

DEPTH (INCHES) @ 10-YEAR STORM

P_{60} = 2.23 x 0.667
= 1.49 inches

P_{360} = 1.93

P_{1440} = 2.43

See the summary output from AHYMO calculations.

Drainage Basins

BASIN	AREA (SF)	AREA (AC)	AREA (MI^2)
1	281239.30	6.4564	0.010088
2	23863.75	0.5478	0.000856
3	30960.45	0.7108	0.001111
4	25224.83	0.5791	0.000905
5	31553.95	0.7244	0.001132
Total	392842.28	9.0184	0.014091

Runoff Calculation Results

BASIN	Q-100 CFS	Q-10 CFS	V-100 AC-FT	V-10 AC-FT
1	32.55	21.32	1.337	0.837
2	2.78	1.82	0.133	0.071
3	3.60	2.36	0.147	0.092
4	2.94	1.92	0.120	0.075
5	3.67	2.40	0.150	0.094
Total	45.54	29.82	1.887	1.169

Drainage Facilities Analysis

Curb Cut

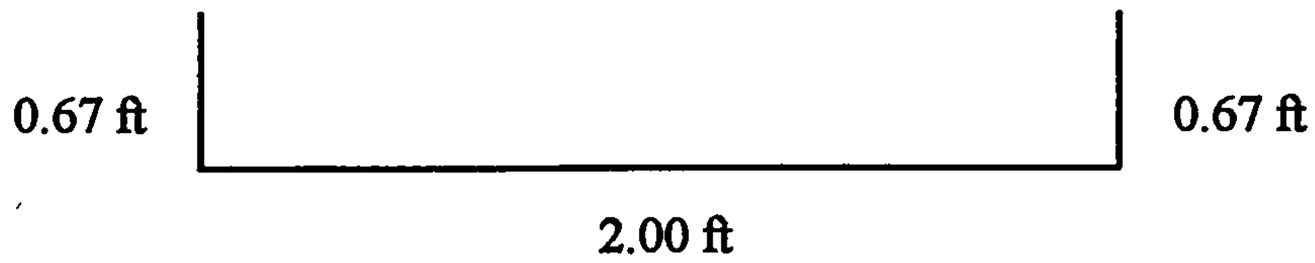
Weir Equation:

$$Q=CLH^{3/2}$$

Basin 4:
Q= Flow (cfs)
C = 2.95
H = 0.67 ft
L = 2.0 ft

$$Q=2.95*2.0*0.67^{3/2}$$

Q = 3.24 cfs
3.24 cfs > 3.13 cfs



Street Channel

Manning's Equation:

$$Q = \frac{1.49}{n} A R^{2/3} S^{1/2}$$

Q = Flow (cfs)
n = 0.017
A = Area
R = Hydraulic Radius
S = Slope

$$A = 0.37 * 32 * 0.5 + 32 * 0.5 = 21.92$$

$$WP = 2 * 0.5 + 2 * \sqrt{0.37^2 + 16^2} = 33.0$$

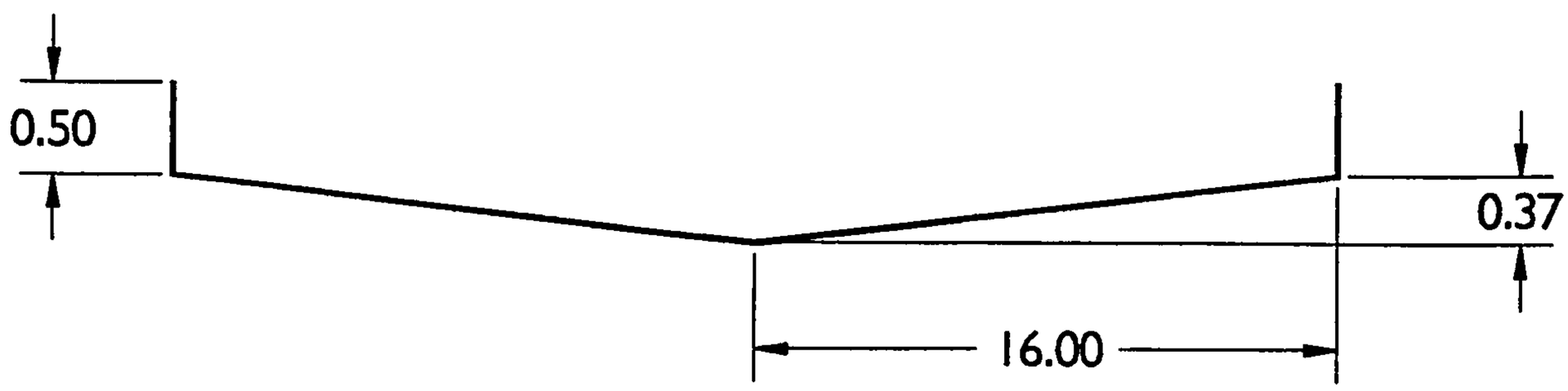
$$R = \frac{A}{WP} = \frac{21.92}{33.00} = 0.6642$$

Manning's Equation:

$$Q = \frac{1.49}{0.017} * 21.92 * 0.6642^{2/3} * 0.0164^{1/2}$$

$$Q = 187.30 \ cfs$$

Capacity of street = 187.30 cfs
Required capacity of street = 32.33 cfs
187.30 cfs > 32.33 cfs



Pipe Capacity

Manning's Equation:

Q = 1.49/n * A * R^(2/3) * S^(1/2)

A = Area
R = D/4
S = Slope
n = 0.013

Pipe	D	Slope	Area	R	Q Provided	Q Required	Velocity
	(in)	(%)	(ft^2)		(cfs)	(cfs)	(ft/s)
Metal Pipe	12	1.64	0.79	0.25	4.57	7.65	9.74

AHYMO
Runoff Input
and
Summary Output
for
Existing Drainage Basins

```
**********************************************************************
*                  SANDIA PLAZA SHOPPING CENTER                      *
**********************************************************************
*       100-YEAR, 6-HR STORM  (UNDER DEVELOPED CONDITIONS)           *
**********************************************************************
*
START                TIME=0.0
*
* BASIN 1
*
RAINFALL             TYPE=1 RAIN QUARTER=0.0 IN
                     RAIN ONE=2.23 IN RAIN SIX=2.90 IN
                     RAIN DAY=3.65 IN DT=0.02253 HR
COMPUTE NM HYD       ID=1 HYD NO=100.1 AREA=0.010088 SQ MI
                     PER A=0.00 PER B=10.00 PER C=0.00 PER D=90.00
                     TP=-0.1333 HR MASS RAINFALL=-1
PRINT HYD            ID=1 CODE=1
*
* BASIN 2
*
COMPUTE NM HYD       ID=1 HYD NO=100.2 AREA=0.000856 SQ MI
                     PER A=0.00 PER B=10.00 PER C=0.00 PER D=90.00
                     TP=-0.1333 HR MASS RAINFALL=-1
PRINT HYD            ID=1 CODE=1
*
*
* BASIN 3
*
COMPUTE NM HYD       ID=1 HYD NO=100.3 AREA=0.001111 SQ MI
                     PER A=0.00 PER B=10.00 PER C=0.00 PER D=90.00
                     TP=-0.1333 HR MASS RAINFALL=-1
PRINT HYD            ID=1 CODE=1
*
* BASIN 4
*
COMPUTE NM HYD       ID=1 HYD NO=100.4 AREA=0.000905 SQ MI
                     PER A=0.00 PER B=10.00 PER C=0.00 PER D=90.00
                     TP=-0.1333 HR MASS RAINFALL=-1
PRINT HYD            ID=1 CODE=1
*
* BASIN 5
*
COMPUTE NM HYD       ID=1 HYD NO=100.5 AREA=0.001132 SQ MI
                     PER A=0.00 PER B=10.00 PER C=0.00 PER D=90.00
                     TP=-0.1333 HR MASS RAINFALL=-1
PRINT HYD            ID=1 CODE=1
*
*
**********************************************************************
*       10-YEAR, 6-HR STORM  (UNDER DEVELOPED CONDITIONS)            *
**********************************************************************
*
START                TIME=0.0
*
* BASIN 1
*
RAINFALL             TYPE=1 RAIN QUARTER=0.0 IN
                     RAIN ONE=1.49 IN RAIN SIX=1.93 IN
                     RAIN DAY=2.43 IN DT=0.02253 HR
COMPUTE NM HYD       ID=1 HYD NO=110.1 AREA=0.010088 SQ MI
```

```
                    PER A=0.00 PER B=10.00 PER C=0.00 PER D=90.00
                    TP=-0.1333 HR MASS RAINFALL=-1
PRINT HYD           ID=1 CODE=1
*
* BASIN 2
*
COMPUTE NM HYD      ID=1 HYD NO=110.2 AREA=0.000856 SQ MI
                    PER A=0.00 PER B=10.00 PER C=0.00 PER D=90.00
                    TP=-0.1333 HR MASS RAINFALL=-1
PRINT HYD           ID=1 CODE=1
*
* BASIN 3
*
COMPUTE NM HYD      ID=1 HYD NO=110.3 AREA=0.001111 SQ MI
                    PER A=0.00 PER B=10.00 PER C=0.00 PER D=90.00
                    TP=-0.1333 HR MASS RAINFALL=-1
PRINT HYD           ID=1 CODE=1
*
* BASIN 4
*
COMPUTE NM HYD      ID=1 HYD NO=110.4 AREA=0.000905 SQ MI
                    PER A=0.00 PER B=10.00 PER C=0.00 PER D=90.00
                    TP=-0.1333 HR MASS RAINFALL=-1
PRINT HYD           ID=1 CODE=1
*
* BASIN 5
*
COMPUTE NM HYD      ID=1 HYD NO=110.5 AREA=0.001132 SQ MI
                    PER A=0.00 PER B=10.00 PER C=0.00 PER D=90.00
                    TP=-0.1333 HR MASS RAINFALL=-1
PRINT HYD           ID=1 CODE=1
*
*
FINISH
```

AHYMO SUMMARY TABLE (AHYMO194) - AMAFCA Hydrologic Model - January, 1994 RUN DATE (MON/DAY/YR) =02/06/1998

INPUT FILE = a:p.dat USER NO.= R_BOHANN.I01

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION	
START										TIME=	.00
RAINFALL TYPE= 1										RAIN6=	2.900
COMPUTE NM HYD	100.10	-	1	.01009	32.55	1.337	2.48449	1.510	5.042	PER IMP=	90.00
COMPUTE NM HYD	100.20	-	1	.00086	2.78	.113	2.48449	1.510	5.080	PER IMP=	90.00
COMPUTE NM HYD	100.30	-	1	.00111	3.60	.147	2.48449	1.510	5.069	PER IMP=	90.00
COMPUTE NM HYD	100.40	-	1	.00091	2.94	.120	2.48449	1.510	5.077	PER IMP=	90.00
COMPUTE NM HYD	100.50	-	1	.00113	3.67	.150	2.48449	1.510	5.069	PER IMP=	90.00
START										TIME=	.00
RAINFALL TYPE= 1										RAIN6=	1.930
COMPUTE NM HYD	110.10	-	1	.01009	21.32	.837	1.55636	1.510	3.303	PER IMP=	90.00
COMPUTE NM HYD	110.20	-	1	.00086	1.82	.071	1.55636	1.510	3.325	PER IMP=	90.00
COMPUTE NM HYD	110.30	-	1	.00111	2.36	.092	1.55636	1.510	3.319	PER IMP=	90.00
COMPUTE NM HYD	110.40	-	1	.00091	1.92	.075	1.55636	1.510	3.323	PER IMP=	90.00
COMPUTE NM HYD	110.50	-	1	.00113	2.40	.094	1.55636	1.510	3.319	PER IMP=	90.00
FINISH											